...ta Library

SECOND SERIES. VOL. IV, No. 1

BULLETIN

OF

THE NEW YORK ACADEMY OF MEDICINE

JANUARY, 1928

INSTITUTED 1847

PUBLISHED MONTHLY BY
THE NEW YORK ACADEMY OF MEDICINE
Fifth Avenue and 103rd Street
NEW YORK CITY

OFFICERS AND STAFF OF THE ACADEMY

1928

President

SAMUEL W. LAMBERT

Vice-Presidents
CHARLES A. ELSBERG
WILLIAM H. PARK
JOHN E. JENNINGS

Recording Secretary
FENWICK BEEKMAN

Treasurer
SETH M. MILLIKEN

Trustees

JOHN A. HARTWELL
JAMES ALEX. MILLER
GEORGE D. STEWART
ROYAL S. HAYNES
EUGENE H. POOL
BERNARD SACHS
CHARLES L. DANA
SAMUEL A. BROWN
ARTHUR B. DUEL
WALTER L. NILES

Council

The President
The Vice-Presidents
The Trustees
The Treasurer
The Recording Secretary
The Chairmen of
Standing Committees

Director
LINSLY R. WILLIAMS

Assistant Secretary
FREDERICK P. REYNOLDS

Assistant Treasurer
RODERICK V. GRACE

Librarian
ARCHIBALD MALLOCH

Legal Counsel
FRANK L. POLK, ESQ.

Executive Secretary
Public Health Relations Committee
E. H. L. CORWIN

Consulting Librarian
FIELDING H. GARRISON

Application for transfer of second class entry to New York, N. Y., is pending.
Subscription $2.00 per year. Single copies, 25 cents.

SECOND SERIES. VOL. IV, No. 1

BULLETIN

OF

THE NEW YORK ACADEMY OF MEDICINE

JANUARY, 1928

INSTITUTED 1847

PUBLISHED MONTHLY BY
THE NEW YORK ACADEMY OF MEDICINE
Fifth Avenue and 103rd Street
NEW YORK CITY

TABLE OF CONTENTS

Anniversary Discourse:

Body and Mind: JOHN DEWEY 3

Recent Knowledge of Epidemic Diseases: LESLIE T. WEBSTER 20

Abstracts of papers delivered at section meetings:

Section of Neurology and Psychiatry, November 1, 1927: WILDER G. PENFIELD, CHARLES A. ELSBERG, BYRON P. STOOKEY 25

Section of Surgery, November 4, 1927: JOHN H. GARLOCK 36

Section of Pediatrics, November 10, 1927: MARTHA WOOLSTEIN, PHILIP M. STIMSON, A. BENSON CANNON, H. R. CRAIG 41

Section of Otology, November 11, 1927: GUSTAV ALEXANDER, Vienna 48

Section of Genito-Urinary Surgery, November 16, 1927: ABRAM L. WOLBARST, JOSEPH A. HYAMS, MAX HUHNER, HOWARD S. JECK, LEO L. MICHEL 50

Section of Ophthalmology, November 21, 1927: ARNOLD KNAPP, LOUISE H. MEEKER and WARD H. COOK, MISS BETTY HIRSCH 62

Section of Obstetrics and Gynecology, November 22, 1927: M. O. MAGID, JOSEPH BINDER, PAUL TITUS, Pittsburgh 74

Section of Laryngology and Rhinology, November 23, 1927: LEON E. WHITE, Boston 79

Section of Pediatrics, December 8, 1927: SIDNEY P. SCHWARTZ and MORRIS M. WEISS, M. H. ELELMAN 80

Section of Neurology and Psychiatry, December 13, 1927: GEORGE HYSLOP, FENWICK BEEKMAN, B. M. VANCE ... 83

Section of Medicine, December 20, 1927: JOSEPH S. DIAMOND 90

Section of Obstetrics and Gynecology, December 27, 1927: J. SYDNEY RITTER, JOHN A. KILLIAN and TRAVERS STEPITA 95

Proceedings of Academy meetings, December, 1927 104

Book Review: A Text-Book of Medicine: RUSSEL L. CECIL 112

Public Health Relations Committee:

Report on the Chief Medical Examiner's Office 114

Library Notes:

Damage to Books 116

Recent Accessions 117

Notes:

Action of the Trustees in regard to a bequest 121

Impressions of medical teaching and hospital work 121

Convalescent care 125

Deaths of Fellows of the Academy 125

BULLETIN OF
THE NEW YORK
ACADEMY OF MEDICINE

VOL. IV. JANUARY, 1928 No. 1

ANNIVERSARY DISCOURSE

BODY AND MIND

JOHN DEWEY

(Delivered before The New York Academy of Medicine, November 17, 1927)

You will not be surprised to hear that when your president, Dr. Lambert, did me the honor to ask me to address you this evening my thoughts turned to the general theme of the relations of philosophy and medicine before settling on a special topic. I was thus led to recall the beginning of both of them in Greece and to the fact that there was a time when philosophy, science and the arts, medicine included, were much closer together than they have been since. For both philosophy and the sciences were conceived and begotten of the arts. It was once their aspiration to find their issue in arts; the sciences in arts of the special branches of life and philosophy in the comprehensive art of the wise conduct of life as a whole.

There is a contemporary philosophic movement, popularly known as pragmatism, which, discontented with the current separation of theory and practise, knowledge and action, regards thought and the beliefs which proceed from it as themselves modes of action and strives to envisage them in their directive office in conduct. This movement is often regarded as a heresy, indeed as a novel and peculiarly American heresy indicative of an insensate love of keeping busy, no matter how. But in truth it marks a return to the idea of philosophy which prevailed when reflective thought was young and lusty, eager to engage in combat in the public arena, instead of living a sheltered

HCB
1-4-36

and protected life. In those days science and philosophy had not parted ways because neither of them was cut loose from the arts. One word designated both science and art: technē. The desire was to command practices that were rational and a reason embodied in practise. During the almost countless ages of prior human history men had pursued the arts thoughtlessly, relying upon the bare accumulation of accidental successes, without paying heed to causes and reasons. In consequence, the arts were routines, devoted to separate ends and meeting only in a common medium of magic and supernatural belief.

The Greeks define an epoch in the history of civilization because they turned back to examine these routines and accidents, and made it their business to discover the principles which underlay them in order that they might reincarnate them in a more intelligent pursuit of ends. In liberating the arts from routine and blind accumulation, they gave birth to science; in view of this achievement there arose the idea of an art of life based upon the most comprehensive insight into the relationships between conditions and ends. Medicine was one of the first-fruits of the scientific emancipation, and, since the Greeks recognized the necessity of a sound mind in a sound body for the conduct of life in its wholesomeness, medicine and philosophy were in close alliance.

The relevant facts are exhibited in the history of the school of Hippocrates. Philosophy appears in it as search for a whole which shall bind together a mass of otherwise disconnected details; while the spirit of science was operative in a loving, patient and prolonged search for facts and their significance, and the medical art was the use of the knowledge and insight thus attained. The union of these three things is seen in the school's glorification of technē; in its criticism of other schools of physicians for studying symptoms in isolation and multiplying diseases and remedies; in its emphasis upon prognosis by which was meant not just a prediction of outcome but a reconstruction of the entire course of a disease; in study of health and disease in relation to environment, climate, seasons and seasonal variations, air, water and soil, while the oath of Hippocrates endures as evidence that human and social ties were included in the wide and searching vision. What at first

sight may seem to be an attack upon mingling philosophy and medicine turns out upon closer inspection to be an attack upon basing medicine upon a narrow philosophical foundation. For the school, borrowing from Heracleitus, Empedocles and Pythagoras, insisted upon the measured harmony of all elements as the conditions of maintaining and restoring health. As Hippocrates said: "We cannot understand the body without a knowledge of the whole of things." And again, speaking of epilepsy and other disorders regarded as sacred and hence treated by means of magical incantations, he said: "These maladies, like all other things, are divine, and yet no one thing is any more divine than another. For all things alike are divine and yet each one of them has its own natural being and proceeds from a natural cause."

We may indeed now smile at the crudeness of their philosophy and science and in view of this crudeness be led to deplore the connection of philosophy, science and medical art. The disparagement of the union may readily become more pronounced when we consider the later development of various medical schools, the dogmatic, empirical, methodistic and pneumatistic, each allied with a particular school of philosophic thought. But objection is really directed against the crude state of knowledge and culture at the time, a state of which both philosophy and medicine were victims. The philosophic spirit at least kept alive the sense of need for general principles and aided in preventing relapse into the earlier crude empiricism.

This introduction is overlong, and may indeed not seem to be at all an introduction to the special topic of the evening, the relations of body and mind. But it was in the course of such reflections that I was led to this topic as a fitting theme. For the conspicuous trait of the period in which science, philosophy and the arts were closely connected was the sense of wholeness, while the very problem of mind and body suggests the disastrous effect of the divisions that have since grown up. I do not know of anything so disastrously affected by the tradition of separation and isolation as is this particular theme of body-mind. In its discussion are reflected the splitting off from each other of religion, morals and science; the divorce of philosophy from science and of both from the arts of conduct.

The evils which we suffer in education, in religion—for example the fundamentalist attack about the evolution of men rests upon the idea of complete separation of mind and body—in the materialism of business and the aloofness of "intellectuals" from life, the whole separation of knowledge and practise:—all testify to the necessity of seeing mind-body as an integral whole.

The division in question is so deep-seated that it has affected even our language. We have no word by which to name mind-body in a unified wholeness of operaton. For if we said "human life" few would recognize that it is precisely the unity of mind and body in action to which we were referring. Consequently when we discuss the matter, when we talk of the relations of mind *and* body and endeavor to establish their unity in human conduct, we still speak of body *and* mind and thus unconsciously perpetuate the very division we are striving to deny. I shall make no attempt to consider all the various theories which have developed in discussing their relation: panpsychism, epiphenomenalism, pre-established harmony, interactionism, parallellism, etc. I shall not even try to prove their unity. I shall beg that question and devote the time to stating the nature of the unity and considering some of the causes which work against recognition of it.

I have used, in passing, the phrases "wholeness of operation," "unity in action." What is implied in them gives the key to the discussion. In just the degree in which action, behavior, is made central, the traditional barriers between mind and body break down and dissolve. Were this the fit time and place, it could be shown, I think, that the habit of regarding the mental and physical as separate things has its roots in regarding them as substances or processes instead of as functions and qualities of action. In contrast to such a notion, it is asserted that when we take the standpoint of human action, of life in operation, body presents itself as the mechanism, the instrumentality of behavior, and mind as its function, its fruit and consummation. To the interpretation of this statement our further remarks are given.

When we take the standpoint of action we may still treat some functions as primarily physical and others as primarily mental. Thus we think of, say, digestion, reproduction and

locomotion as conspicuously physical, while thinking, desiring, hoping, loving, fearing are distinctively mental. Yet if we are wise we shall not regard the difference as other than one of degree and emphasis. If we go beyond this and draw a sharp line between them, consigning one set to body exclusively and the other to mind exclusively we are at once confronted by undeniable facts. The being who eats and digests is also the one who at the same time is sorrowing and rejoicing; it is a commonplace that he eats and digests in one way to one effect when glad, and in another when he is sad. Eating is also a social act and the emotional temper of the festal board enters into the alleged merely physical function of digestion. Eating of bread and drinking of wine have indeed become so integrated with the mental attitudes of multitudes of persons that they have assumed a sacramental spiritual aspect. There is no need to pursue this line of thought to other functions which are sometimes termed exclusively physical. The case of taking and assimilating food is typical. It is an act in which means employed are physical, while the quality of the act determined by its consequences is also mental. The trouble is that instead of taking the act in its entirety we cite the multitude of relevant facts only as evidence of influence of mind on body and of body on mind, thus starting from and perpetuating the idea of their independence and separation even when dealing with their connection. What the facts testify to is not an influence exercised across and between two separate things, but to behavior so integrated that it is artificial to split it up into two things.

The more human mankind becomes, the more civilized it is, the less is there some behavior which is purely physical and some other purely mental. So true is this statement that we may use the amount of distance which separates them in our society as a test of the lack of human development in that community. There exists in present society, especially in industry, a large amount of activity that is almost exclusively mechanical; that is carried on with a minimum of thought and of accompanying emotion. There is a large amount of activity especially in "intellectual" and "religious" groups in which the physical factor is at a minimum and what little there is is regretted as a deplorable necessity. But either sort of behavior in the degree

of its one-sidedness marks a degradation, an acquired habit whose formation is due to undesirable conditions; each marks an approximation to the pathological, a departure from that wholeness which is health. When behavior is reduced to a purely physical level and a person becomes like a part of the machine he operates, there is proof of social maladjustment. This is reflected into disordered and defective habits of the persons who act on the merely physical plane.

Action does not cease to be abnormal because it is said to be spiritual and concerned with ideal matters too refined to be infected with the gross matter. Nor is it enough that we should recognize the part played by brain and nervous system in making our highly intellectual and "spiritual" activities possible. It is equally important that we realize that the latter are truncated and tend toward abnormality in the degree that they do not eventuate in employing and directing physical instrumentalities to effect material changes. Otherwise that which is called spiritual is in effect but indulgence in idle phantasy.

Thus the question of the integration of mind-body in action is the most practical of all questions we can ask of our civilization. It is not just a speculative question; it is a demand: a demand that the labor of multitudes now too predominantly physical in character be inspirited by purpose and emotion and informed by knowledge and understanding. It is a demand that what now pass for highly intellectual and spiritual functions shall be integrated with the ultimate conditions and means of all achievement, namely the physical, and thereby accomplish something beyond themselves. Until this integration is effected in the only place where it can be carried out, in action itself, we shall continue to live in a society in which a soulless and heartless materialism is compensated for by soulful but futile and unnatural idealism and spiritualism. For materialism is not a theory, but a condition of action; that in which material and mechanical means are severed from the consequences which give them meaning and value. And spiritualistic idealism is not a theory but a state of action; that in which ends are privately enjoyed in isolation from means of execution and consequent public betterment.

In insisting upon the need of viewing action in its integrated wholeness, the need of discriminating between different qualities of behavior due to the mode of integration is emphasized, not slurred. We need to distinguish between action that is routine and action alive with purpose and desire; between that which is cold, and as we significantly say inhuman, and that which is warm and sympathetic; between that which marks a withdrawal from the conditions of the present and a retrogression to split off conditions of the past and that which faces actualities; between that which is expansive and developing because including what is new and varying and that which applies only to the uniform and repetitious; between that which is bestial and that which is godlike in its humanity; between that which is spasmodic and centrifugal, dispersive and dissipating, and that which is centred and consecutive. Until we can make such distinctions and make them in a multitude of shades and degrees, we shall not be able to understand the conduct of individuals, and not understanding, shall not be able to help them in the management of their lives. Because of this lack, education will be a guess in the dark; business a gamble in shifting about and circulating material commodities, and politics an intrigue in manipulation. What most stands in the way of our achieving a working technique for making such discriminations and employing them in the guidance of the actions of those who stand in need of assistance is our habitual splitting up the qualities of action into two disjoined things.

It is necessary, however, to be explicit upon what is meant by saying that within the unity of behavior body stands for the means and agencies of conduct, and mind for its incorporated fruits and consequences. The bodily phase of action may be approached and studied in two ways. We may take it in its connection with processes which are going on outside the body, the processes which it shares with inanimate things. Or we may take it in connection with what it actually does and effects in the distinctively human medium. The first mode of approach views action in all its modes as a variegated complex of physico-chemical interactions. This kind of study is more than legitimate; it is indispensable. If organic changes are regarded as something unique, cut off from and unlike in kind to those occurring

in inanimate nature, we cannot understand them, and therefore cannot direct and modify the manner of their taking place. Only when we identify them with events in inanimate nature does our knowledge in physics and chemistry become available for knowing them; only then do the appliances and techniques that we have developed for control of affairs outside the body become adaptable for use in dealing with what goes on within the body. As long as organic processes and changes are connected with any unique, non-physical force or principle, our knowledge of them is rudimentary and accidental. When they are seen to be shared with processes going on in inanimate nature, all that is discovered about the latter becomes an intellectual tool for systematic knowledge of vital process and the apparatus and technics for directing physical nature are capable of utilization in hygienic, medical and surgical treatment of bodily changes.

If this were the whole of the story, bodily action would be wholly assimilated to inorganic action, and the inclusion of the body in behavior that has mental quality would be impossible. The remainder of the story is that chemico-physical processes go on in ways and by interactions which have reference to the needs of the organism as a whole and thus takes on psychical quality, and in human beings at least are in such connection with the social environment as confers upon them intellectual quality. Any notion that human action is identical with that of non-living things or with that of the "lower" animals is silly. It is contradicted by the fact that behavior is so *organized* in human beings as to have for its consequence all that we call civilization, culture, law, arts—fine and industrial, language, morals, institutions, science itself. And by its fruits we know it. Organic processes are thus seen to be the constituent means of a behavior which is endued with purpose and meaning, animate with affection, and informed by recollection and foresight. In the end, the bodily is but a name for the fact that wherever we have consequences, no matter how ideal, there are conditions and means. Materialism does not consist of a full and frank recognition of this fact, but in the isolation of means and conditions from what they actually do.

We have spoken so much of action and behavior that it is

needful that we should be explicitly aware of what these words signify. In particular it is indispensable to note that when we are dealing with human behavior, the word designates a kind of behavior in which outcomes of the past and outlook on the future are incorporated; with something longitudinal and not something cross-sectionally lateral. We may isolate a particular organic structure or process for study. In as far as we do so, we regard it as similar to arrangements and processes which are shared with inanimate things. But we cannot understand the organism until we have taken its history into account. We have to know whether we are studying an embryonic, an infantile, a mature or a senescent form. We have to place the particular affair studied in a career of development. In dealing with a special chemical reaction, say that of hydrogen and oxygen in bringing water into existence, we may neglect past history. We select a brief segment for study because we are not concerned with the individuality of the molecules involved; it is enough that what happens is a specimen of something which recurs and is repeated in other situations independently of the individuality of just these molecules. This is precisely the omission we cannot make in studying phenomena of human behavior. A human being carries his past in his habitudes and habituations, and we can rightly observe and understand the latter only as we are aware of the history which is included within them. That the practitioner, physician, psychiatrist and educator, is capable of dealing intelligently with the phenomena which confront him only when he knows something of their life history is a commonplace. And it is not just the life history of the particular symptom of disorder he needs to know but the life history of the individual in whom it appears. It is equally a commonplace that the need of such knowledge of life history as a whole increases in the degree in which the mental phase of disturbance is prominent.

Such facts point to what is signified when it is said that human behavior is longitudinal, not just cross-sectional. It forms a history, an autobiography, not indeed written but enacted. The import of this fact in relation to the mental phase of action should be evident. When it is neglected, any item of behavior is regarded as an immediate lateral cross-

section, and thus becomes purely mechanical, and without intellectual and emotional quality. This is precisely what happens when a reflex or specific reaction to a specific stimulus is treated as the unit of behavior, and all other behavior is treated as a compound of such units. Since the simple reflex is devoid of emotional and intellectual quality, it then logically follows that mind is not a property of any behavior. It is a fiction or a meaningless by-product accompaniment like the beauty of a rainbow with reference to a purely physical account of the refraction of light by vapor. To assert, then, that *conscious* behavior is a fiction is to draw a logical deduction from a premise, not to observe a fact. And since the fact of conscious behavior, of observing, analyzing, noting, reasoning, is involved in the whole undertaking, the absurdity of the conclusion shows the falsity of the premise. We know that the structures involved in reflexes are not as matter of fact primitive and original. The converse is true as both phylogeny and ontogeny prove. The beginning is with action in which the entire organism is involved, and the mechanism of reflexes is evolved as a specialized differentiation within an inclusive whole of behavior. The assumption that the nature of behavior is exemplified in a simple reflex is a typical case of the fallacy of neglecting development, historical career. In consequence an account of the mechanism of a particular account of behavior is converted into an account of behavior in its entirety. Only in this fashion is the role of the mental in action relegated to the realm of fiction.

The criticism may be broadened to take in the whole reduction of mental phenomena to the stimulus-response type as that reduction obtains in current psychological theory, even among those who do not call themselves behaviorists. There is no doubt that any item of behavior can be stated in terms of a response to a stimulus—just as it may be stated in terms of cause-effect. But as the doctrine is usually employed it omits to consider the one question which is scientifically and practically important: namely, how did an object or situation acquire the capacity to *be* a stimulus? For to be a stimulus in evoking a response is an additive property of physical things. The organism is constantly surrounded by indefinitely numerous conditions which affect it. If we regard them all as stimuli

because they enter into casual interaction with the living creature we say in effect that the whole universe is stimulus and also response. Such a view clearly makes the theory worthless for purposes of *analysis*. It is the occurrence of a particular mode of action we are trying to describe and account for, an attempt which implies that some special feature of the environment is so weighted as to operate as stimulus. Now what makes some physical thing or trait a stimulus is the condition of the whole organism at the time, its needs and the kind of behavior in which it is already engaged. And both of these things are longitudinal, historical; they include factors formed in previous life history. Any particular thing at any particular time is a stimlus, evoking an adaptive response and use, only in virtue of the enacted biography of the organism.

There is an attempt to recognize the importance of historical development in some forms of the stimulus-response theory. Present behavior is traced back to original "bonds" in the nervous system which are innate, or to behavior in the form of what are usually called instincts. Thus previous development is nominally taken into account. But such recognition of life history is nominal rather than real. An earlier cross-section of behavior is postulated back of which development is not traced. Consequently the position of the lateral segment in the development of action as a whole is left out. The theory is only a verbal re-statement of the compounding of reflex units theory; the only difference is that an "instinct" or a performed "bond" of stimulus and reaction, is somewhat more extensive and complex than is a reflex. But since it is not sufficiently complex and extensive to take in the needs, demands and disposition of the organism as a whole, the basic fallacy remains the same.

The reference to stimuli proceeding from the environment brings us in effect to the second way in which the account of behavior is rendered so partial and split off that its mental phase has either to be denied as a fiction or else regarded as mysterious and unnatural. For the stimulus-response theory, as usually held, cuts off the environment from behavior. It treats environment simply as an external occasion from which behavior proceeds. Behavior is thus treated exclusively as going

on inside the organism, something which is simply set off or initiated by the environment. In reality, the environment is just as much comprised within behavior as are organic processes. Behavior is not just something which goes on *in* a surrounding medium. If it were, behavior could be studied and described as something which goes on in the organism or which goes forth out of it in total neglect of environment, save the reference to some part of the latter as a touch-and-go stimulus. Behavior in fact is a continuous interaction in which environing as well as organic factors are included. This is true even of the functions we often regard as exclusively physiological. We do not just breathe, we breathe air; we do not just digest, we digest foodstuffs. We do not just move the legs and body; we walk on the ground, and from one place to another, so as to obtain a more favorable environment to be incorporated in subsequent behavior.

To describe the structures and processes of the organism in isolation, in their exclusive reference to organic structures, and then call the result an account of behavior, is to omit the most distinctive character of behavior. Sherrington's classic work "The Integrative Action of the Nervous System" marks an epoch in the development of science. What is it which the action of the nervous system integrates? Simply its own, turning upon itself as a snake is said to swallow its tail? Clearly not, but the behavior of the entire organism of which it is a part. But when and how is the action of the organism integrated? There can be one answer. It is integrated in the degree that it utilizes and transforms its environment by means of incorporating some element of the latter within behavior. Utilization here signifies that something in the surroundings is rendered a means in the carrying on of some phase of behavior, as assimilation of food and the breathing of air maintains life-behavior itself. Transformation signifies that some part of surrounding conditions is actually changed so that the environment is modified into a form more favorable than before to the maintenance of life-behavior. To describe the action of a part of the nervous system, or of the entire nervous system, or of the entire organism in isolation from the environment included within behavior is like thinking that we can understand

a machine, say a loom, if we omit the material, the yarn, upon which it works and the transformation of the material into cloth wrought in the operation. Since the mental, if it can be found anywhere, must be found in behavior which comprises *objects* of desire, thought and affection, to accept the premise which identifies behavior with the action going on inside the organism is to commit ourselves to denial of mental quality as a dialectical conclusion from a premise. Many persons will remain so assured that mental phenomena are actual facts, that they will then prefer to go on believing in them, and will treat them as proofs of a mysterious substance called mind, soul or consciousness. Thus the one-sidedness of the theory about behavior perpetuates the very tradition which a complete account of behavior would eliminate.

The bearing of the one-sided omission of environment in description of behavior upon the truly mental phase of behavior is most evident when we consider the elimination of the human or social environment. For it is the incorporation of this environment in action which is most intimately and extensively connected with the intellectual and emotional quality of behavior. The question of the role of language and other constructed signs in mind gives a crucial test. I do not question the connection of thinking with speech and other signs. Speech and the use of signs is an affair of behavior. What is questionable is the elimination of relations with other human beings from the account given of language habits and of thinking conceived as "exercised implicitly behind the closed doors of the lips"—in other words as something which goes on subcutaneously, wholly inside the organism. Such a description reduces speech to vocalization or making of sounds, and thinking to a silent exercise of the organs of vocalization and other internal structures. Now the making of sounds is not speech. Sounds issuing from vocalization are speech only when they are used to institute a mode of behavior on the part of another human being which will favorably affect the behavior of the one speaking. Sounds issue from phonograph or radio, sounds which imitate articulate speech. The phonograph does not speak, however. For while the sounds that issue may induce action on the part of others, anticipation of such action does not

enter as a factor in its putting forth of sounds. Any modification of the behavior of others which is affected by the sounds emitted by the radio is not incorporated as a factor in *its* behavior. Precisely such inclusion of objective social consequences is what transforms sounds into speech or language, as may be seen from taking any simple case of command, request or advice. Speech is primarily a mode of action by which the behavior of one is so influenced by the expected or hoped for behavior of others as to become an integral part of concerted action.

Thinking as implicit speech is made on the same pattern. It represents the social situation carried over into the habits of the organism. One talks to himself as a way of anticipating objective consequences (that is, consequences into which the environment enters) before they happen, and as a means of eventually securing those which are disliked. This renders behavior intelligent, thoughtful. It is all to the good when "consciousness" is thrown overboard as a substance or separate process designated by a noun: for "ness" indicates that the noun is abstract and results from erecting a quality of action into a thing in itself. But the quality of being conscious remains; the difference between behavior that is aware of what it is about and routine or impulse behavior is as marked a factual difference as we can anywhere discover. To deny the reality of meaning as something mysterious and unnatural, outside of connection with the range of interactions which form behavior, is to the good. But refusal to admit meaning as a quality of behavior is another matter, and one which confutes itself. For the propounders of the doctrine that meaning is non-existent address words on that subject to others; they expect their language to be understood and not be taken as a nonsensical farrago; they anticipate consequences in the way of modified behavior to result from understanding and their language behavior is modified by this expectation of response. They take it for granted that some behavior has meaning; this cannot be granted without implying that some behavior, their own for example, in the observations and analyses whose conclusion they present, is conscious: that is, is aware of what it is about, of what it is doing and trying to do. The conception of behavior

in its integrity, as including a history and environment is the alternative to a theory which eliminates the mental because it considers only the behavior of the mechanism of action as well as the theory which thinks it ennobles the mental by placing it in an isolated realm.

Thus we are reminded of our beginning, the recall of happier days when the divorce of knowledge and action, theory and practise, had not been decreed, and when the arts as action informed by knowledge were not looked down upon in invidious disparagement with contemplation complete in itself; when knowledge and reason were not so "pure" that they were defiled by entering into the wider connections of an action that accomplishes something because it uses physical means. There are signs that we are perforce, because of the extension of knowledge on one side and the demands of practise on the other, about to attempt a similar achievement on our own account. I close with suggesting the imperative need of such an integration in the art of education, an integration which can become real only as the scientific man, the philosopher, the physician and psychiatrist cooperate.

The art of education is one in which every person is compelled whether he will or not to take an interest, because it so intimately concerns his own conduct. A person may begin with a narrow interest, one that cares only about, say, the education of his own children or of members of his own profession. But he does not go far before he is forced to note that he is building on a sandy foundation because of deficiencies due to earlier education. Professional education has its results limited and twisted because of the general state of education. Surveying that, it appears that its improvement cannot be made secure merely by better training of teachers. Parents, school officials, taxpayers have the last word, and the character of that word is dependent upon their education. They may and do block or deflect the best laid plans. That is the circle in which education moves. Those who received education are those who give it; habits already engendered deeply influence its course. It is as if no one could be educated in the full sense until everyone is developed beyond the reach of prejudice, stupidity and apathy.

There is no possibility of complete escape from this circle. Education returns upon itself in such a multitude of ways as to render out of the question any short cut solution. It is a matter of accelerating momentum in the right direction, and of increasing the effective energy of the factors that make for removing obstacles. Chief among these obstacles are the practices which are associated with the traditional separation of mind and body and the consequent neglect of informed and intelligent action as the aim of all educational development. The division has affected every subject of study, every method of instruction and discipline. More than anything else it explains the separation of theory and practise, of thought and action. The result is a so-called cultural education which tends to be academic and pedantic, in any case aloof from the concerns of life, and an industrial and manual education which at best gives command of tools and means without intelligent grasp of purposes and ends. The consequences of this divided education are writ large in the state of our civilization. The physician meets them in a wide range of induced disorders, to say nothing of waste and incapacitation. The walls which mark the separation are beginning to crack, although they are far from crumbling. From all sides the artificiality of isolation from one another of mind and body are commencing to be seen. There is at least the beginning of cooperation between those who are traditionally occupied with the concerns of mind and those busy with the affairs of the body. The planning of any good school building is an illustrative symbol. Architect, engineer, hygienist, teacher and public official may join forces. But there are still many who should have a say, like the psychologist, who are left out, and such cooperation as there is lacks balance. It would be interesting for example to know what physicians would say of the wisdom of the herding together of thousands of children in our gigantic buildings with the enforced need of dealing with children en masse and the institution of lockstep methods—would say if they were consulted and if they thought their voice would be heeded. The growing interest in pre-school education, nursery schools and parental education, the development of medical inspection, the impact of social hygiene, the institution of school visitors and the use of schools as social centres are other

evidences that the isolation of schools from life is beginning to give way because of cooperative action. But not even the most optimistic would hold that we have advanced beyond the outer breastworks. The forces are still powerful that make for centrifugal and divisive education. And the chief of these is, let it be repeated, the separation of mind and body which is incarnated in religion, morals and business as well as in science and philosophy. The full realization of the integration of mind and body in action waits upon the reunion of philosophy and science in art, above all in the supreme art, the art of education.

RECENT KNOWLEDGE OF EPIDEMICS

LESLIE T. WEBSTER

(Delivered before The New York Academy of Medicine, November 3, 1927)

We are all interested in one way or another in epidemiology and have asked ourselves some of its most perplexing questions. Why do certain diseases suddenly attack a number of individuals at the same time; why do they affect some and spare others; why do they spread—sometimes among a few and sometimes over a greater part of the world; why do they stop; and finally, why do they reappear after an interval of time and repeat the same series of events?

Answers to these questions have not been wanting. Had we lived in the time of Hippocrates we should have looked to the heavens for the cause of pestilence and should have assigned to comets, unusual configurations of the plants, and any remarkable natural phenomena, complete responsibility for epidemic disease. Later, in Sydenham's time, we should have dropped our eyes to the ground and considered noxious vapors and seepings from the soil as causing the trouble. At present, however, Pasteur's hypothesis is generally accepted, and we have come to regard all the varied phenomena of infectious disease as due directly or indirectly to the microbe. An epidemic starts because the specific germs have become more virulent or disease-producing; some individuals die because their microbes are highly virulent, while others are spared because theirs are less so; the disease spreads locally or widely according to the powers of the germs; stops when they begin to lose their potency; and reappears again sooner or later when a new increase in virulence is attained. The germ theory, therefore, explains epidemics entirely in terms of fluctuations in microbic virulence.

More than forty years of bacteriological research have since demonstrated that the experiments upon which this theory is based were not well-controlled and that their application is subject to considerable limitation. Furthermore, statisticians and clinicians are pointing out the close association of prevalence

of infection with season, diet, and other environmental conditions. The resisting mechanisms of the animal host, hereditary or acquired, racial or individual, also are now recognized as playing a part. Apparently, therefore, some element of truth still remains in the pre-bacteriological theories of "epidemic constitution."

Instead of reviewing in detail these recent tests and observations, I should like to speak of our own work in experimental epidemiology, so-called because its purpose is to study the mode of spread of epidemic diseases, and because its method is truly experimental.[1]

The history of experimental epidemiology is brief. In 1918 Topley induced epidemics of mouse typhoid experimentally in his laboratory in London, and studied the conditions under which these outbreaks occurred.[2] At about the same time, Flexner, assisted by Amoss, began similar studies at the Rockefeller Institute in New York. Since then Topley has continued to work actively in England, and we in this city. Three years ago Neufeld, Director of the Robert Koch Laboratory in Berlin, and his associates, began experimental epidemiological investigations,[3] and at present, in America, there are five, and perhaps other laboratories, in which these same problems are being considered.

To study epidemics experimentally, it is necessary to choose some native animal microbic disease resembling a human infection. Then at least three procedures are indicated: 1) studying the disease as it occurs spontaneously in nature; 2) inducing its various endemic and epidemic phases experimentally in the laboratory, and 3) determining and measuring the factors which cause the disease to vary in amount and severity.

We have been concerned with five native animal infections; three in mice, one in rabbits, and one in chickens. Two are intestinal and three respiratory in origin; mouse typhoid, caused by a paratyphoid organism; mouse typhoid, caused by a food poisoning, enteritidis-like bacillus; mouse pneumonia, due to a

[1] These studies are published in the *Journal of Experimental Medicine*.

[2] Professor Topley's reports may be found in the *Journal of Hygiene*.

[3] The work from Professor Neufeld's laboratory has been published in the *Zeitschrift für Hygiene*.

capsulated organism of the Friedländer group; rabbit colds and pneumonia, caused by the plague-like pasteurella organism; and fowl colds and pneumonia, known as roup and fowl cholera, due also to a plague-like bacillus of the pasteurella group. Each has been studied as it occurs spontaneously; each has been induced experimentally in the laboratory and there analyzed under carefully controlled conditions.

The technique for observing the *spontaneous* disease in an animal community consists in familiarizing ourselves over long periods of time with the amount and type of clinical infection, and the number of specific deaths and nature of the lesions, and relating this information to the prevalence of the specific bacteria in the population. The technique used in the analysis of the *experimental* epidemics is a very special one which has two important requirements; namely, maintaining all conditions as near as possible to those occurring spontaneously in nature, and second, removing all disturbing and unknown variables.

The results of our observations on the spontaneous diseases enabled us to plan the laboratory epidemics more successfully. They gave us information concerning the various types of clinical infection and the relative amount of each, of seasonal fluctuations in type and severity of disease, and knowledge of the amount and distribution of the specific bacteria available to the population.

The most significant results, however, were obtained from studies of the experimental laboratory epidemics. Here, as elsewhere, we found the amount and severity of infection in a community to depend upon three factors: the disease-producing power or virulence of the microbe, the numbers of microbes available, and the resisting powers of the population concerned. Our ultimate task therefore lay in the measurement of these factors during various epidemic and endemic phases of each disease.

Before discussing the results of these measurements, one further word concerning technique is necessary.

Virulence, dosage, and host susceptibility are measured by administering specific organisms to animals and noting their reactions and duration of life. Formerly, in such tests, no control measures were employed. For example, culture A from a

human being was administered intraperitoneally to one mouse, and culture B in similar quantity to another. If the first mouse was found to live longer than the second, culture A was considered to be less virulent. At the present time, however, we know that microbes given to a foreign host behave in a manner quite different from when administered to their native host; that given by an abnormal portal of entry, their effect is in no way comparable to that when administered by the normal route of infection; that differences in individual susceptibilities of animals make it obligatory to use sufficiently large numbers for each test; and finally that differences in actual numbers of organisms administered exert markedly different effects. Therefore, titrations of virulence, of dosage effect, and host susceptibility differences, to be of any epidemiological significance, that is, to throw light on the natural mode of spread of disease, must be made *with organisms administered in type pure culture, in known numbers, to their natural host by way of the normal port of entry!*

We have titrated the virulence of organisms concerned with four of these native animal infections, the paratyphoid and enteritidis mouse typhoid, mouse Friedländer pneumonia, and rabbit colds and pneumonia. The cultures have been obtained from various animal populations in which the specific diseases were spreading spontaneously, or as a result of experimental procedures. We have compared the virulence of cultures taken from pre-epidemic periods, epidemic periods, and post- and inter-epidemic times. Organisms recovered from animals which have died acutely during severe outbreaks have been compared with others taken from surviving healthy carriers. The effect of animal passage on virulence has also been tested.

Throughout, our results have been consistent in that we have found no differences in the pathogenicity of type pure cultures recovered from pre-epidemic, epidemic, post- or inter-epidemic phases of these infections. Animal passage, likewise, had no changing effect on the disease-producing powers of the microbes. The bacteriophage phenomenon, present in the mouse enteritidis infection, and "bacterial variation" phenomena which occurred in all but the mouse paratyphoid disease, were found to play no part in determining the amount and severity of these outbreaks.

Hence we concluded that in the diseases studied, the microbic virulence factor is relatively constant.

Analysis of the dosage factor revealed that, in general, an increase in numbers of bacteria given to groups of animals is followed by an increase in morbidity and mortality. Furthermore, we found that by choosing proper doses of mouse typhoid or mouse Friedländer organisms and administering them to groups of mice, there resulted amounts and rates of mortality which corresponded to those occurring among our special populations during spontaneous epidemics of these diseases. Apparently, therefore, epidemics were caused merely by bringing animals in contact with the requisite amount of the specific organisms.

This hypothesis was tested further among our special populations of animals, in which spontaneous epidemics were occurring, by determining whether each outbreak was preceded by a demonstrable increase in numbers of specific bacteria available. Thus, by counting the typhoid bacteria present in the sawdust bedding, and the numbers of nasal carriers of the Friedländer organisms, we found that there was a very great rise in the amount of bacteria available to the herd before each outbreak. Wave-like fluctuations in dosage preceded similar mortality waves by an interval of time corresponding to the incubation period of the disease. We concluded, therefore, that the presence of a proper dosage of microbes is the essential cause of epidemics of these four native animal diseases.

In titrating the third factor concerned in the spread of epidemic diseases, host resistance, we were able to demonstrate consistent and significant differences in racial susceptibility to infection. Furthermore, individuals were found to differ in their ability to resist disease. For example, if a number of rabbits was given intranasal instillations of the pasteurella organism, some developed pneumonia and septicemia and died, others showed merely local rhinitis, sinusitis, or otitis media, while still others proved to be carriers, or entirely refractory. Differences in the resisting powers of individual animals were further demonstrated by selective breeding experiments, whereby relatively resistant or susceptible strains were developed.

The amount of racial and individual resistance of animals

was found to be markedly affected by dietary and atmospheric conditions. Thus, mice fed on the so-called McCollum standard diet, or on a ration containing cod liver oil, proved far more resistant to the paratyphoid and Friedländer infections than other groups fed on the usual bread and milk formula. Hence we sought to determine whether in the special populations of animals under observation there were fluctuations in resistance to the specific infections, which might account for the increased dosage and epidemic outbreaks observed.

Unfortunately, we have not been able to devise a technique suitable for the direct measurement of population resistance, but we have succeeded in altering this factor experimentally and observing the effect of such a procedure on the course of disease. By subjecting a community of rabbits to daily fluctuations in temperature of about 50° F., we apparently brought about a marked increase in the number of carriers of the pasteurella organisms and subsequently in the amount and severity of snuffles and pneumonia. And by keeping a part of this population on a partially restricted diet, we noted at all times a carrier rate greater than that of the remainder of the community not so treated. The carrier rate and amount of Friedländer and enteritidis infection in the special populations of mice were strikingly influenced by substituting the beneficial McCollum diet for the usual ration. And when the daily increments to these populations were made up of susceptible races of mice, rather than the usual relatively resistant strain, the amount of disease increased immediately. Apparently, therefore, a lowering of population resistance is followed by an increase in the number of virulent organisms and the amount of disease present in the community, while an enhancement in the communal powers of defense leads to a corresponding decrease in dosage and mortality.

We conclude that in the native animal diseases studied, microbic virulence does not fluctuate and that epidemics are incited directly by an increase in the numbers of specific bacteria available to the population. We believe this increase in dosage is the result of changes in host resistance and that these changes may be brought about in two ways, according to whether the specific organisms are already present in the community, or

gain entrance to it from without. If the bacteria are exogenous, they ordinarily meet with a population of little or no resistance, multiply, and disseminate rapidly, and thus cause a severe epidemic. If, on the other hand, the pathogenic microbes are already present in a given community, an increase in dosage takes place when population resistance is lowered, through births, migration and fluctuations in seasonal, dietary, and other environmental influences.

At present we do not wish to generalize too far, nor to extend our conclusions to human disease, but we do wish to stimulate further thought on these questions. Is there any proof that human pathogens change in virulence? May not typhoid and dysentery outbreaks from food or water contamination, pandemic influenza, plague and cholera of the middle ages, tuberculosis and exanthemata of isolated communities have been due to foreign organisms coming in contact with a highly susceptible population, thus leading to tremendous increase in available dosage? And may not endemic pnuemonias, exanthemata, common colds, Oriental plague, cholera, and malaria be caused by lowering of population resistance to organisms already present in the community, leading thereby to an enhancement of dosage?

Careful experiments, well controlled, are needed before we can venture an answer to these questions. But if it prove that the amount of population resistance does determine the amount or dosage of virulent bacteria present in a community, and thus controls the prevalence of infectious disease, then for the first time we are shifting the responsibility for epidemics from the field of the mysterious to that of an understandable, concrete series of events; we are approaching the time when we may hope for control over pandemic outbreaks, and are justifying experimentally any and all attempts toward personal and social hygiene. From the clinician and health official we shall need aid in the further pursuit of this problem. I speak tonight for this and for your renewed interest in epidemiology.

ABSTRACTS OF PAPERS DELIVERED AT SECTION MEETINGS

Combined Meeting of the Section of Neurology and Psychiatry with the New York Neurological Society, November 1, 1927

CEREBRAL PNEUMOGRAPHY. APPLICATIONS OF VENTRICULOGRAPHY AND ENCEPHALOGRAPHY

WILDER PENFIELD

Ventriculography by direct injection of air into the ventricles and encephalography by the spinal injection of air have come to be accepted diagnostic aids to neurology. The judicial use of these methods has been made difficult because of the lack of frank discussion of the advantages and dangers in the methods. Some workers have been dazzled by the brilliant diagnoses which can sometimes be made and have perhaps relied too greatly on the methods, minimizing the attendant dangers and forgetting that the diagnosis might sometimes have been made with equal definiteness by more careful neurological examination. Other workers have been discouraged from further use of the methods because of a fatal accident or because of inability to interpret the pneumograms. It is necessary to use careful discrimination in regard to the type of case involved before forming a judgment concerning either the dangers or the value of cerebral pneumography by either method.

Pneumography in Diagnosis

Both the spinal and ventricular injection of air for diagnostic purposes were first described by Dandy in a series of brilliant papers. Unfortunately he failed to give implicit warning and technical advice concerning the method which might have helped the other neurological surgeons and neurologists who have since found the method useful.

The chief service of pneumography at present is localization of expanding lesions in the brain. When used for this purpose as for other diagnostic purposes, the method must always be considered a supplement to the other forms of neurological examination and where diagnosis can be made without its aid, air injection should not be employed.

The location of expanding lesions may be judged by alteration in the form of the ventricles. A ventricle may be obliterated by direct pressure, may be displaced away from the tumor, or may be caused to dilate because of distal obstruction to the outflow of cerebrospinal fluid. It should be borne in mind that neoplasms and other expanding lesions push but do not pull upon the ventricular walls. Thus, an expanding lesion in the right frontal lobe may cause obliteration of the right anterior horn of the lateral ventricle, marked narrowing of the right inferior horn of the lateral ventricle (so that this horn shows only as a narrow slit) and also dilatation of the body, and of the inferior and posterior horns of the ventricle on the opposite side. It may likewise cause dilation of the posterior horn on the same side. These enlargements are due to more or less complete obstruction of the ventricle of foramina of Monro.

An expanding lesion on the lateral aspect of the hemisphere may partially obliterate the ventricle on that side and may displace both lateral ventricles toward the opposite side or down, depending on the position of the lesion. It is unnecessary to point out here the characteristics of the symmetrical dilatations which these ventricles undergo as the result of simple obstruction of the downward pathway of the spinal fluid into the posteria fossa and even forward in the basal cisternae.

It is true that in certain situations, tumors may progress a long way even to death and give no evidence of their presence as seen by ventriculography. For example, an infiltrating tumor of the pons may cause death before giving rise to hydrocephalus but such cases are rare and with all the means at our command the diagnosis of unlocalized brain tumor is as a general rule no longer justified.

In addition to the localization of an expanding lesion, pneumography may be used to rule out the presence of an expanding lesion and thus differentiate between a vascular lesion and an expanding one. If carefully done, air in the ventricles does not seem to give rise to an unwarrantable risk after an old cerebral thrombosis. Pneumography has been well used to localize the site of the block in hydrocephalus. Also occasionally it has been found useful in localizing a spinal fluid block

due to tumors of the spinal cord. Here, however, lipiodol offers certain advantages, the chief of these being that the slender column of air is much less readily seen through the thick tissues of the trunk than is the lipiodol.

In addition to localizing obstructive and expanding lesions, pneumography is of help in the study of brain scars and it should be borne in mind that a scar following direct brain injury produces its alterations in the outlines of the ventricle in a very different manner from that of an expanding lesion. Foerster has described what he called "wandering of the ventricle." This "wandering" takes place *towards* the side of the brain injury. Thus the whole ventricular system may be pulled towards the site of the lesion, not pushed away from the site, as in the case of an expanding lesion.

Histological study shows very clearly the mechanism of this traction. Laceration of the brain and hemorrhage in it produces a connective tissue scar usually attached to the overlying brain-covering. The great plexus of vessels which is found in such scars is pulled upon and this pull transmitted directly to the cerebral vessels and from them to the brain substance by means of the perivascular attachments of astrocytes.

The choice between ventriculography and encephalography must be made according to the individual case. In general, encephalography permits a more complete study of the ventricles.

Among the untoward reactions are the rare hemorrhage from puncture of a tumor by a ventricular needle, and marked subsequent increase of intracranial pressure. These reactions are seen in cases of brain tumor. The first may be guarded against by approaching the ventricle through the occipital lobes after examining the visual fields. The second, either removal of the air after roentgenography, or immediate operation. The other untoward reaction chiefly to be feared is a sudden bulbar paralysis with evidences of vasomotor collapse. This may appear in encephalography in apparently normal cases where the ventricle as well as the subarachnoid is filled.

In a case of encephalography which I observed this happened suddenly when the patient's brow was turned down and oscil-

ated and I attributed it to rather sudden filling of the fourth ventricle with a large air bubble. His condition was very bad for about 10 minutes after which respiration became normal and pulse regular.

In general encephalography may be used to advantage to study the subarachnoid space and cerebral convolutions in cases where the intracranial pressure is not raised. It should rarely or never be used to study cerebral neoplasm. For this condition ventriculography is less dangerous and more useful.

The indications for cerebral pneumography must be carefully scanned but the timorous attitude of some workers is no longer justified. The risk of the method in each case depends entirely on the nature of his lesion. In brain tumor the mortality is much higher but the necessity of localization is imperative.

Therapeutic Use of Lumbar Air Insufflation

I should like to direct your attention to the use of lumbar insufflation in the therapy of traumatic headache. Occasional observations of relief from chronic headache in the course of encephalographic studies have been made by Hirsch, Bingel, Foerster and Carpenter.

Without knowing of these incidental reports of relief from headache it has been my fortune during the past year to discover that a certain type of headache may be treated by lumbar insufflation with almost invariable success as outlined in a shortly forthcoming report. The first case in the series was treated five years ago. The patient was suffering from severe frontal headache following a fracture of the skull six weeks previously. The air was caused to pass through the subarachnoid spaces to the site of the pain for purely diagnostic purposes and to my surprise the boy was completely relieved of his headache and vomiting, which had been his only complaints.

Four years later the expedient was again undertaken, this time for headache and as an experiment to see whether or not a patient suffering from post-traumatic headache of 18 months' duration could not be relieved. This patient's suffering had been so great that it was feared that he would commit suicide.

Chronic meningeal headache has the following characteristics: localized pain in the head and transient vertigo are the cardinal symptoms of which these patients complain. The headache is invariably localized. It may spread to a certain extent but is definitely referred to one particular part of the head. In most cases the pain is situated near the site of the blow but there seems to be a tendency for the pain to migrate forward into the frontal region and in some cases the pain has been on the opposite side of the head from that which was struck.

The pain is dull and is often described as "hammering." There are at times, in addition, fleeting sharp stabbing pains at the same site. These may be more noticeable in bad weather. The headache is usually present every day with some tendency to diurnal variation often being worse in the late afternoon.

The vertigo is usually present from the start. It comes on when the patient rises from a sitting position or may appear at any time and usually lasts for several minutes. There is no sense of rotation but the patient finds it necessary to grasp something and hold on until the sensation has disappeared.

In general there are no physical signs typical of the condition. The blow is often associated with a fracture of the skull but not necessarily so. A period of unconsciousness following the accident has been usual but not at all invariable.

There is a striking similarity in the patient's complaints which seems to justify the recognition of these complaints as a syndrome, and the uniform relief which lumbar air insufflation has afforded seems to indicate that the method, if properly used, may be a specific treatment.

The pathology of the condition is not clear as yet. It has been frequently suggested by Foerster, Schwab and others that the cystic arachnitis serosa which may follow trauma to the head may be responsible for the post-traumatic complaints. The pneumograms of these patients have shown in two cases definite evidence of subarachnoid cyst formation. In many of the cases there is an escape of air from the subarachnoid space to the subdural space. In certain cases roentgenography does not show any definite evidence of a pathological process in the pia-arachnoid space. The number of cases investigated is too small to form a conclusion with regard to the mechanism respon-

sible for the production of the pain and dizziness. It seems likely, however, that the passage of the bubble of air through the subarachnoid space frees the brain so that fine adhesions are broken or a post-traumatic obliteration of the subarachnoid space is opened.

Lumbar air insufflation as used in such cases should be done with considerable caution and with all necessary safeguards. The treatments are done in the reclining position and movements of the head made so as to carry the air into the subarachnoid space, completely filling this space over one cerebral hemisphere. The position filled should be the site of the pain and with little or no passage of air into the ventricle. The patient should be kept flat in bed until the air has absorbed.

The suggestion is made that the same type of meningeal headache may possibly follow infection of the sinuses or mastoid region and may explain the chronic headache which sometimes continues independently of the primary infectious process. It is suggested that these inflammatory meningeal headaches may likewise be susceptible of relief by lumbar air insufflation. The method should be used cautiously and never employed where there is already increased intracranial pressure due to a lesion in the posterior fossa.

THE CLASSIFICATION OF EXTRADURAL SPINAL TUMORS WITH REMARKS ON THE ORIGIN OF THE SO-CALLED ENDOTHELIOMAS [1]

CHARLES A. ELSBERG

Primary, secondary and metastatic extradural growths *within the cranial cavity* are relatively infrequent as compared with intradural tumors of the brain and it is rarely difficult to distinguish the one from the other. Extradural compression of the *spinal cord* by growths is observed in more than 25 per cent. of spinal tumors. Most of the growths cause cord or root symptoms by direct pressure; some by interference with the blood supply and secondary myelomalacia; in others the

[1] The paper will be published in full in Surgery, Gynecology and Obstetrics.

interference with cord function is due to a sinking together of the bodies of several vertebrae and not to the direct pressure of the neoplasm.

The classification of extradural tumors without adequate differentiation between those that are *primarily* extradural and those that *secondarily* extend into the verterbral canal has led to considerable confusion as far as the symptoms are concerned.

Extradural spinal tumors should be divided into (1) primary extradural; (2) secondary extradural; (3) metastatic extradural.

In a series of 179 cases of spinal tumor, not including intramedullary or metastatic growths, 46 were extradural. Of these, 52 per cent. were primary and 48 per cent. were secondary.

The primary tumors arise from dura, nerve roots or epidural fat and blood vessels or from the bony, cartilaginous or ligamentous walls and are located entirely within the vertebral canal.

Many of the primary extradural growths are benign and encapsulated and completely removable. The meningeal and perineurial fibroblastoma, the fibroma angioma, and chondroma are usually single. The primary extradural chondroma occurs in two forms: in the one, the growth lies in the extradural space on the ventral or dorsal aspect of the dural sac; in the other, the growth is derived from and firmly fixed to an intervertebral disc.

The primary extradural sarcoma occurs in two forms. Either the growth is derived from the dura and has no tendency to become adherent to or to involve the bony walls of the vertebral canal, or it begins within the canal, erodes the surrounding bone, and grows outwards forming an hour-glass or dumb-bell shaped tumor.

The second extradural tumors are either benign or malignant, and extend into the vertebral canal through intervertebral foramina or by bone erosion. They arise from the vertebrae or paravertebral soft tissues and may be extensions of growths

in the thorax or deep tissues of the neck or back. In these secondary growths, the true spinal symptoms only begin when the tumor has extended into the spinal canal or has interfered with the blood supply of part of the spinal cord. With some exceptions, cord symptoms are more acute in their onset and more rapidly progressive. In the author's series, the development of spinal cord disturbances was a gradual one in 23 per cent., and rapidly progressive in 77 per cent.

Secondary extradural should be kept distinct from the metastatic extradural growths.

At least 30 per cent. of patients with primary or secondary extradural tumors can be greatly improved or permanently cured. The proportion is larger in the primary than the secondary, and in benign than in malignant growths.

Finally, the speaker made some remarks on the histological classification of encapsulated tumors of the nervous system and recommended the classification of Penfield-meningeal fibroblastoma (endothelioma, meningioma, arachnoid fibroblastoma), perineurial fibroblastoma (solitary neurofibroma), and the neurofibroma of von Recklinghausen's disease.

The meningeal fibroblastomas commonly known as endotheliomas or meningiomas, probably arise from cells of the perimedullary mesenchyme, which embryologically belong to the arachnoid but which have remained with the cells of the dura or pia mater or in the arachnoid itself. The speaker had found spinal endotheliomas in relation to every surface of the three membranes excepting underneath the pia mater. The study of the spinal endotheliomas has therefore contributed much to the understanding of the origin of this type of newgrowth.

THE MODERN TREATMENT OF TRIGEMINAL NEURALGIA

BYRON STOOKEY

In March, 1926, before the Medical Society of the State of New York, Section in Surgery and Neurology, Dr. Stookey read a paper on differential section of the trigeminal nerve

for trigeminal neuralgia. Up to the time of that report Charles Frazier's subtotal resection of the trigeminal nerve, *i.e.*, saving the ophthalmic fibers and motor root, was the procedure employed. The method suggested before the New York State Society was a further step in the refinement of the procedure, which had previously been so brilliantly developed by Dr. Frazier, in that according to the technique advanced by Stookey a true differential section of the dorsal root is now done, selecting for section those fibers proximal to the ganglion which are derived either from the maxillary or the mandibular division, according to which division gave rise to pain.

This procedure has now been done for several years with signal success, especially in those cases in which pain has been limited to the mandibular division. Selection of the fibers derived from the maxillary division, without injury to the fibers from the ophthalmic or mandibular divisions, has been more difficult to perform and as yet has not been possible with uniformity, since some of the adjacent fibers from the ophthalmic or mandibular division are likely to be cut in the attempt to segregate the fibers of the maxillary division for section. With further experience and greater skill in technique it is felt that greater assurance may be developed and the maxillary fibers identified as readily as are the mandibular. Differential section is especially desirable in those patients in whom the pain has been limited to the mandibular division. In these the sensory fibers derived from this division can be cut and the motor fibers running with the mandibular division saved without injury to the maxillary fibers or the ophthalmic, thus destroying only those fibers along which pain has been carried without disturbing the motor division to the muscles of mastication and leaving the patient with a minimum anesthesia and its attendant paresthesias.

Dr. Stookey called attention to the fact that separation of the trigeminal nerve into two nerves, the ophthalmic and the maxillo-mandibular nerve, was the rule in comparative anatomy of this nerve and that this separation of the gasserian ganlion into separate parts had been stressed by Giglio-Tos (1902) [1]

[1] Tos, Giglio. Sull' origine embrionale del nerve trigemine nell' uomo. *Anat. Anzeiger,* 21, 1902.

and in a more elaborate study by Frazier and Whitehead (1925).[2]

In addition Dr. Stookey pointed out that in herpes zoster the inflammatory process within the ganglion may be limited to the ophthalmic or maxillo-mandibular portions thus suggestive clinical evidence is offered that a line of separation within the ganglion may exist as is indicated by its comparative anatomical development. Further clinical evidence of separation within the ganglion was pointed out in that pain may affect any one of the three divisions and that primary pain in the ophthalmic division is extremely rare.

Patients were shown illustrating differential section as done by Dr. Stookey during the past few years at the Neurological Institute together with lantern slides of operations and additional cases.

Discussion

Dr. Stookey: An electrode is used to pick out the motor fibers. The trouble is that considerable dispersion of the current occurs especially when there is any cerebrospinal fluid in the wound, making accurate identification of the motor root by this method of little value. I do not believe the electrode would help to differentiate the sensory fibers. If we were able to touch the afferent fibers and watch the patient carefully I think possibly we might find some help such as reflex phenomena which would be an aid as you suggest.

Section of Surgery, November 4, 1927

THE TREATMENT OF COMPOUND INJURIES OF THE EXTREMITIES

JOHN H. GARLOCK

In this age of mechanical industry and automobiles, hazards are great and accidents are many. Occupational injuries, it seems, are decreasing gradually, due, in great part, to the in-

[2] Frazier, C. H. and Whitehead, E. Morphology of Gasserian Ganglion. *Brain*, 48: Pt. I, 158, 1925.

stallation of safety devices, and also to educational propaganda among the workmen by means of lectures, posters, etc. Injuries caused by motor vehicles are probably on the increase, as evidenced by recent statistics. The total number, augmented by accidental injuries received in other ways, is appalling when statistics covering large sections of the United States are analyzed. While, undoubtedly, the future will bring methods for decreasing the number of accidents, the situation at the present time must be met by the intelligent treatment of these injuries, so that there will be a saving of life and limb with return of form and function as near to normal as possible.

The writing of this paper was undertaken with the idea of presenting our experiences with many various types of injuries of the extremities, indicating the type of therapy giving satisfactory results. The cases forming the basis of this communication were patients on the Second Surgical Division of the New York Hospital.

The lessons learned from the recent war are gradually being forgotten, and it is mainly the purpose of this paper to emphasize again the practice and teaching of surgeons at its termination.

In the treatment of such injuries, the first step is the organization of a service in each hospital which will be under the supervision of men especially interested in this type of work. Secondly, all these patients must be considered as emergencies; and thirdly, when the principle of wound excision, combined with that of irrigation, becomes universally accepted as the basis of initial treatment, a marked improvement in results may be expected. One must also accept the principle of early active motion especially in joint and tendon injuries, and in a selected group of compound fractures.

Wounds of Soft Parts. With the possible exception of small clean wounds, all injuries of the soft parts should be subjected to the operation of débridement, after the preliminary preparation. This treatment is especially applicable to wounds of the hand, where infections, which are common, cause serious disabilities. Then, after débridement, these wounds should be sutured loosely, so as to avoid undue tension. When operation cannot be performed, cleansing, iodinization, and the application

of a few sterile adhesive straps should constitute the extent of treatment. When these injuries involve the extensor tendons, they should be sutured at the primary operation. There is usually a return of full function. A different situation is encountered, however, when the flexor tendons are injured. In such conditions, if the wound is clean, a primary tenorrhaphy can be performed. If the wound is grossly contaminated, and the surrounding skin is macerated, it is wiser to defer the tenorrhaphy until the super-imposed soft part wound has healed.

Wounds involving muscles and fascia, must be débrided. Traumatized muscle is an excellent culture medium for anaërobes, and gas bacillus infections must always be thought of. In all such injuries, conservation of limb should be the prime consideration, when possible; but it must be disregarded when conservation of life becomes the main issue. The advisability of suturing such wounds must be seriously considered. In general, it may be said that most of them can be closed without drainage. When, however, there is marked crushing, it would seem wiser to leave the wound wide open, or perform a partial suture. When the history of the injury indicates a strong possibility of implantation of the anaërobes, it is wiser to leave the wound wide open.

Compound injuries opening into joints, may be treated as injuries elsewhere in the body, because a joint that has been opened by an injury does not necessarily become infected. If the capsule can be brought together, immediate closure seems preferable. The following pre-operative treatment is carried out in all compound injuries:

After the patient is anaesthetized, the whole region involved and a wide area of surrounding skin is shaved and carefully and gently scrubbed with sterile soft brushes and tincture of green soap. The soap suds and debris are washed away with sterile saline, care being taken to prevent the washings from entering the wound. The limb is then dried with sterile towels, followed by a wash with benzine. A copious irrigation with ether then follows. The wound and surrounding skin is then mechanically cleansed by a prolonged irrigation with sterile saline. The parts are then thoroughly dried and again flooded with ether. The entire area, skin and wound, is then painted with 3½% alcoholic

solution of iodine, care being taken to keep the iodine from synovial membranes, such as in a joint or tendon sheath. The extremity is then draped. Cultures are taken from the depths of the wound and also from the surrounding skin; they should be so planted as to demonstrate anaërobes, if present.

A painstaking débridement of all traumatized skin and deeper tissues is then performed. It is important to obtain absolute hemostasis. The joint capsule and the super-imposed structures are then sutured with interrupted stitches. Undue tension of all structures must be avoided. Releasing incisions in the skin flaps aid greatly in preventing this tension in the skin. All patients with compound injuries are given tetanus antitoxin. The period of immobilization in joint injuries, varies with each case. In general, the earlier active motion is started, the better will be the end-result.

Compound Fractures and Dislocations. All fractures compounded from without inward should be subjected to the operation of débridement. The majority of fractures compounded from within outward can be treated as simple fractures. Frequent use has been made of the intravenous glucose insulin therapy, recommended by Fisher, to overcome the initial shock that many of these patients present. At operation, it is important to excise all traumatized muscle and hematomata. After reduction of the fracture, many require some form of fixation. It has been our custom to use kangaroo tendon rather than some form of metal plate or band. The majority of femur fractures have been treated by débridement followed by traction and suspension. The majority of these wounds can be closed without drainage. When the history, however, indicates a strong possibility of implantation of anaërobes, it would seem wiser to leave the wound wide open for dakinization. External fixation in nearly all uncomplicated fractures of the leg, arm or forearm, can be obtained by the application of a circular plaster cast. The wound is inspected daily through a window. An elevation of the temperature and pulse rate is of serious prognostic significance, indicating usually beginning gas gangrene. The subsequent treatment is dependent upon the type of injury, and follows the same general rules as in the treatment of simple fractures.

Wounds With Loss of Skin. In wounds of lesser magnitude, without associated bone injury, it is frequently possible to bring about approximation after débridement and undermining of the skin flaps. When, however, this cannot be done, other methods are available:

1. The application of a pedunculated flap from an adjacent or distant region of the body, a method particularly applicable to wounds of the hand, wrist, and foot.

2. The application of Thiersch grafts after débridement. This method probably is most suitable for the majority of such wounds. A secondary skin flap operation can be done later, if necessary.

3. If the wound is accompanied by extensive crushing and devitalization of tissue, it is probably wiser not to attempt immediate skin grafting, contenting oneself with as thorough a débridement as possible. Intensive dakinization subsequently, followed by the application of Thiersch or Davis pinch grafts as soon as the appearance and bacteriology of the wound permits, forms the basis of the additional treatment.

4. The application of a free, full-thickness skin graft after débridement. Theoretically, this method is open to many objections for the particular type of case under consideration.

When, in addition to loss of skin, there is an associated bone injury, it is probably wiser to defer skin grafting to a later date. It must be remembered that bones covered only with subcutaneous tissues, and skin, such as the tibia, must be covered with a pedunculated flap in order to prevent subsequent ulceration.

Amputations. Every attempt should be made to save a limb, providing this can be done with a clear understanding of the possibilities involved. Some will subsequently come to secondary amputation, but the not infrequent case will come through with a serviceable limb. Primary amputation is indicated:

1. When the entire blood supply distal to the injury has been cut off.

2. Frequently when there has been an avulsion of the skin of an entire extremity.

3. When there has been irreparable crushing of bone and soft parts.

The site of amputation will depend on the situation and extent of injury, the proximity of neighboring joints and a consideration of the subsequent use of an artificial limb. In upper extremity amputations, every attempt should be made to preserve as much tissue as possible, especially in the hand.

The most important question to be decided pertains to the advisability of suturing such amputation wounds at operation. It would seem after a consideration of the various factors involved, that the majority of these stumps should be left wide open. At a subsequent date, when it is certain that there is no infection, the skin flaps can be coapted with adhesive straps or a secondary suture can be performed.

Section of Pediatrics, November 10, 1927

NEUROBLASTOMA OF THE ADRENAL IN YOUNG CHILDREN

MARTHA WOLLSTEIN

Primary tumors of the adrenal medulla occurring in young children, congenital in origin and malignant in course, have been known for a long time. They appear in the literature under various headings. Wright in 1910 studied this group of neoplasms and described them as neurocytoma or neuroblastoma of the adrenal medulla. Wright drew attention to the similarity of the morphology and arrangement of the cells and fibrils in these growths to that in the anlage of the adrenal and the sympathetic nervous system at certain periods of their development. On the basis of the most recent histological investigation Bailey and Cushing prefer the name sympathicoblastoma because the tumors originate from embryonal pluripotential cells of the sympathetic nervous system. While the majority of the reported tumors of this type have been found in or growing from the adrenal medulla, they may grow from sympathicoblasts anywhere in the body. Thus tumors not involving the adrenal gland have been reported by Landau from the abdominal sym-

pathetic chain in a girl of eight months and by Boyd in a boy of four and one half years, while Martius described one from the cervical sympathetic in a boy two and one half years old. Pick's case grew from the uterus, and Anderson and Shennan found one growing in the apical region of the right lung in a girl twelve weeks old.

At the Babies' Hospital a series of nine adrenal sympathicoblastomata, proven by microscopic study at operation or at autopsy, have accumulated. These nine neoplasms fall into several distinct groups clinically and anatomically. Three were boys and six were girls. The tumor involved the left adrenal in four cases, the right in four cases, and both in one instance. The age of the children varied from three weeks to almost three years, three being under the age of one year, three in the second year, and three in the third year of life. There were five different types according to the location of the primary tumor and its metastases. Thus we have, first, the simplest case of the series, where a small nodule was found in the left adrenal, leaving the greater portion of the organ in an apparently normal condition, and forming no metastases. This tumor showed on microscopic examination the most typical and exquisite structure of embryonal sympathetic cells and fibrils according to Wright's classical picture.

The next type was illustrated by two cases, three weeks and nine months old, respectively, and both boys. The younger child showed the primary tumor in the right adrenal, the elder in the left. Both showed metastases in the liver, enlarging it so greatly that it became the outstanding symptom. No other metastases were present. While cases of this (Pepper) type occur most often in young infants, Morse and Wolbach have reported a case in a boy four years old.

The third type conforms to what is known as the "Hutchinson type of round cell sarcoma of the adrenal." It was represented in our series by two cases, one boy and one girl, respectively eighteen months and thirty-one months old. In the latter it was the right adrenal which was affected, while in the former the left side was the seat of the primary growth. Both of these children showed metastases over a much wider area, involving bones of the skull, the ribs, the liver, one kidney, and in the case

of the girl, the dura mater as well. The liver was involved to a much less extent than was the case in the second group. The children thus affected are, in most cases, in the second or third year of life.

In the fourth group there were again two patients, a boy of twenty-three months and a girl of twenty-six months. In the boy both adrenals were affected. In the girl only the left. Both were characterized by an inoperable tumor lying in front of the vertebral column between the adrenals and kidneys, making a mass from which kidneys, adrenals, and prevertebral neoplasm had to be painstaking separated and dissected. The prevertebral mass was a second tumor focus, and there was a metastasis in one kidney.

The fifth group consisted of two cases where the neoplasm was quite unattached to the kidney and to the surrounding structures, and therefore operable. One of the children, a boy fifteen months old, is alive one year after operation. The neoplasms from both these children showed areas of sympathicoblastoma and of ganglioneuroma; that is, in some parts of the growth the cells had become differentiated into ganglion cells, and these portions were more firm and white.

No case of complete recovery has been reported; that is, the prognosis is practically always fatal, because the growth is either locally invasive or it metastasises early, leaving only a small percent of the cases which are operable when diagnosed.

THE EARLIER DIAGNOSIS OF MEASLES

PHILIP MOEN STIMSON

Inasmuch as the coming half year will probably show a heavy incidence of measles, this disease apparently occurring in biennial waves in New York City, it would seem advisable once again to emphasize the familiar details in the early clinical diagnosis of measles, and, if possible, to suggest new or less well-known features which might aid in the still earlier recognition of the presence of measles. Of the four periods of the disease, those of incubation, of invasion, or catarrh, of the rash, and of convalescence, only the first two are discussed here.

In the last half of the period of incubation there may be a temporary loss of five to six ounces in weight and the blood count may show a lymphocytic leucopenia towards the end of the period.

The period of invasion or catarrh begins in the great majority of cases with fever. Within a half day or so, there next may occasionally be found a "measles line" or linear congestion in the mucous membrane of the lower eyelid, about a third of the way from the blepharal margin to the fornix. In ten children where a typical measles line of this sort in the eye was observed and the disease prognosticated at this stage, it subsequently became manifest in eight. The duration of the line as such is short, the injection spreading to become a general conjunctivitis when the other evidences of catarrh appear, such as coryza and cough, comprising with conjunctivitis the "three C's," characteristic of the second or third day of the disease and the cause of much of its spread to other people. The rash in the throat, or enanthem, usually precedes the "three C's" as may also a short-lived prodromal rash on the body. Koplik's spots inside the cheeks, and which have also been reported as having been found in the eyes, nose, and vagina, usually follow after the catarrh in order of appearance; hence measles patients have been contagious with their catarrh for an appreciable length of time before the finding of Koplik's spots establishes the diagnosis. The typical exanthem characteristic of the disease follows usually at least a day later, after the appearance of the pathognomonic Koplik's spots—often more.

Uncomplicated measles rarely kills, deaths being due almost without exception to the effects of secondary infections. Therefore every case of measles should be isolated at its onset from every other case. Experience in hospital and home has shown conclusively the value of this measure, and the harm that follows not using it.

Therefore, this winter and every year, we must be prepared to make the earliest possible diagnosis of measles, to isolate the patient on the first suspicion, and to protect him from secondary infection.

DERMATOLOGICAL CONDITIONS AS SEEN IN CHILDREN

A. Benson Cannon

Eczemas and impetiginous infections are the most frequently seen dermatological conditions in infants and young children. For convenience, we make three groups of the commoner forms of eczemas, classifying them according to etiology, as infantile, seborrheic and pyogenic.

Infantile eczema usually occurs in infants from three weeks to six months of age, appearing as a bilateral, symmetrical, diffuse, catarrhal dermatitis on the cheeks and often extending to other parts of the body. Seborrhea occurs first on the scalp as a dry, finely scaly affection and on spreading to the body, the lesions are sharply demarcated erythematous patches, the scales being dry or slightly oily. Pyogenic eczema begins as staphylococcic infection beneath the vernix caseosa and gradually involves the scalp, face, and body as a sharply defined red, crusted, purulent condition. Other conditions, analagous to and stimulating these eczemas, but of different etiology and requiring somewhat different treatment, are mycotic infections, infectious eczematoid dermatitis and so called "candy" eczema.

Of the impetiginous infections, simple impetigo is the most prevalent, occurring usually on the exposed parts of the skin as an erythematous, vesicular, bullous, yellow and waxy, crusted condition. In new born infants, the affection sometimes becomes generalized, appearing as an epidemic in hospital nurseries, and often ending fatally. Another impetiginous infection (Ritter's disease), also occurs in the new born as a generalized, moist, exfoliative dermatitis of streptococcic origin. This type also frequently ends in death. There is a follicular impetigo (Bockhardt), usually beginning as a papular and pustular eruption which often spreads over the entire body and extremities, and which may prove fatal.

Two dermatoses, met with in early life and characterized by intense itching, are prurigo mitis and lichen chronica simplex. While dissimilar both have often been attributed to protein sensitization and both are chronic.

Being able to distinguish between the several types of eczemas and recognizing the form of treatment indicated often enables one to predict with some degree of certainty the results which can be obtained in the individual case. While we are unable to effect a cure in all children suffering from true infantile eczema, we can always alleviate the condition for a longer or shorter period. Impetiginous infections, except sometimes in the new born, can usually be promptly and permanently cured by the ordinary antiseptic and antiparasitic remedies.

CASE REPORT

H. R. Craig

Two cases of xeroderma pigmentosum are shown. The patients are sisters aged twenty months and five years, of Italian parentage. The father, aged forty-one years, and the mother, aged thirty-one years, are living and well. Of a family of six children the eldest, fourteen years old, is living and normal. The second child died with xeroderma pigmentosum, with generalized carcinomatous metastases, at the age of nine years. The third and fourth children are living and well. The fifth and sixth children are the patients shown.

Patient No. 1. Age five years. She was born in December, 1922, and four months later photophobia was first noticed, followed shortly by slight tanning and freckling. The child was first taken outdoors in June at the age of six months. The feeding and developmental history were normal. The photophobia, freckling and general tanning became progressively more marked, especially on the exposed surfaces, until about a month before admission there appeared masses on each lower eyelid. Under the right eye is a hard keratotic mass, irregular in contour though more or less pyramidal in general outline, greyish brown in color, avascular and entirely insensitive. On the lower left lid is a globular mass about 2.0 cm. in diameter, located near the inner canthus, very elastic to touch, telangiectatic in char-

acter, and has on its median surface some keratosis. About its base there is some thickening and infiltration suggesting neoplasia probably of the acanthoma type. This mass is not tender. The skin over the entire body is markedly tanned and on the exposed surfaces there is abundant freckling, with small miliary areas of telangiectasis and atrophy of the skin. In addition, at the back of the neck there are several small areas of keratosis. The mucous membranes are not involved and otherwise physical examination reveals nothing. The laboratory findings are as follows: Hgb. 60%—R.B.C. 4,016,000—Platelets 464,000—W.B.C. 7,550—Polys. 75%—Lymphos 25%. Fragility, normal. Urine, normal. Sugar tolerance test, normal.

Blood Sugar	110	mgm.	per	100	cc.
Blood N.P.N.	40.5	"	"	"	"
Urea N.	15.7	"	"	"	"
Calcium	11.2	"	"	"	"
Phosphorus	5.0	"	"	"	"
Cholesterol	0.121	"	"	"	"
Van den Bergh	negative				
Urine-Urobilinogen	negative				
Melanin	negative				
CO_2 Combining Power	55.5 vol. per cent.				

Patient No. 2. Aged 20 months. Feeding and developmental history are normal, and physical examination shows nothing abnormal except marked generalized tanning over the entire body with greatest pigmentation and freckling over the exposed surfaces, especially the face. The photophobia is marked. There are no keratoses or telangiectases. The laboratory findings are similar to those in the older sister.

We have two cases of xeroderma pigmentosum occurring in sisters, one in the earlier stages, the other presenting the later phases with skin atrophy, keratoses, telangiectases and carcinoma.

Section of Otology, November 11, 1927

NEW HISTOPATHOLOGICAL FINDINGS IN THE EAR IN LUES AND THE IMPORTANCE OF THESE FINDINGS FOR THE GENERAL PATHOLOGY OF THE EAR

(The paper is based on the histological examination of six cases of lues with defective hearing)

GUSTAV ALEXANDER
Vienna

The changes I have found in lues are related in many directions with the changes in the inner ear caused by other diseases: First, the content of the fat tissue in the inner ear, already observed in cretinism and now also found in lues. It may be that this fat tissue represents something like the low resistance of the organ which we call in German "Minderwertigkeit" (the low value of the organ). This finding can explain how it is that while in some instances the ear is diseased from lues in others it is not.

The finding of some secretion in the internal ear makes the luetic findings equal with the finding in otitis interna vasomotoria (Brunner); showing that in the development of internal ear lues the vasomotoric system is also an influence.

The finding of different degrees of atrophy in the cortis organum and in the nerve and ganglion apparatus in many cases of lues is equal with the changes in the inner ear typical of those caused by arteriosclerosis. We know, clinically and anatomically, that the internal auditory artery becomes changed very early. Very often the beginning of the arteriosclerosis is associated with ear symptoms,—otalgia angiosclerotica (Stein), bad hearing, and noises. The cause, when the ear is affected so early, must be seen in the fact that the internal auditory artery runs isolated and branchless as one of the thinnest arteries in the human body, nearly the length of three to four centimeters (30 to 40 mm.), and is then divided into end-arteries. We know that such an artery reacts very quickly to all kinds of direct and indirect injuries—therefore also to arteriosclerosis. The manner in which lues causes atrophy of the inner ear can therefore be in some cases only through endarteritis luetica.

The findings of ecstasia of the pars inferior of the inner ear and the sac formation in the vestibule in our cases of lues are the same as those found regularly in cases of Paget's disease. The cause of the ecstasia must be a change in the endolymphatic sac in the case of lues—as represented by luetic meningitis.

The findings of the complete or incomplete closure of the cochlear aqueduct in our cases of lues are the name as those found in a choked labyrinth caused by brain tumor. In the case of lues, the closure of the cochlear aqueduct is therefore the end-result of the luetic pachyleptomeningitis and encephalitis.

Of practical and theoretical value is the finding of gumma in the inner ear capsule in cases of lues, resembling the changes in otosclerosis. These findings demonstrate that the opinion that otosclerosis may be caused by lues is entitled to consideration, and this finding gives me a base for saying:

1. That in future I shall use antiluetic treatment with neosalvarsan and salvarsan and hydrargyrum, and also the malaria treatment of Wagner in cases of otosclerosis.

2. This antiluetic treatment is indicated as a prophylactic measure for children with a positive heredity for otosclerosis through parents or other near blood relations.

3. This treatment may also be indicated as a treatment for pregnant women with otosclerosis, in order to prevent the progress of the ear disease during the pregnancy. It may also be that this treatment may prevent in the developing embryo the formation of an ear organ of low value.

4. This antiluetic treatment is also indicated for all patients with otosclerosis in whom the distance hearing is not below that for conversation. It is necessary, also, that in cases of otosclerosis the antiluetic treatment should be given in the earliest possible stage after the manifestation of the disease.

I have to mention still another fact of physiological importance. In one of my cases (No. 1), the distance for hearing was very low. The patient—whom I had known for years and whose ears I had repeatedly examined—had no hearing for sentences; he heard only very loud words spoken directly on the ear. I had formerly had the experience that such limited hearing cannot be caused alone by changes in the conductive apparatus but must also be combined with changes in the per-

ceptive or nervous apparatus of the cochlea. But the histological findings in my case clear up only a very low degree of nerve atrophy, and atrophy of the cortis organum, just in the beginning of the vestibular part of the cochlea. In all other directions of the cochlea the cortis organum was perfectly normal from the beginning of the basal coil to the tip. The same normal finding was shown by the cochlear nerve and by the spiral ganglion. We can make this histological diagnosis exactly because the preservation of the structure of the inner ear was perfect. This finding demonstrates that the marked diminution of hearing in this case was caused only by the changes in the bone capsule, and allows the generalization that extremely poor hearing can also be caused by changes in the conductive apparatus alone, without changes in the cortis organum and in the nerve ganglion apparatus.

Section of Genito-Urinary Surgery, November 16, 1927

THE PRESENT DAY TREATMENT OF ACUTE GONORRHEA IN THE MALE

ABRAM L. WOLBARST

In the successful treatment of acute gonorrhea, lies the entire problem of gonorrhea in the male. There can be no complications or chronic hangover if the acute infection is properly treated. There is no single method of treatment which has been generally approved; this accounts for the multiplicity of methods, all of which are valuable in certain cases, but no one can tell in advance whether a certain method of therapy will be useful or harmful in any given case.

One of the cardinal errors in treatment is the tendency to seek a hasty cure of the acute infection; this leads to overtreatment, which in turn predisposes to trauma and chronicity. The cure is the aim in view, not the time it takes to bring it about. It is not necessary to kill the gonococcus outright;

almost any chemical with antiseptic properties will kill the gonococcus, but to effect a lasting cure the chemical must not injure the tissue.

Internal treatment is limited to an alkaline solution and a copious intake of water. Recent additions to internal therapy, which have more or less value, are acriflavine in the form of enteric-coated capsules and pyridium, both of which have not yet demonstrated their ultimate therapeutic status.

Local treatment aims to destroy the invading organisms, but it should leave the tissues undamaged. Hydrostatic irrigations of permanganate of potassium should not be used in acute infections; they traumatize the mucosa and predispose to complications, particularly in the hands of the inexpert. Mercurochrome, acriflavine, metaphen, collene and similar preparations have been used as a substitute for the permanganate solution, but they are subject to the same criticism. In subacute and chronic conditions and in non-specific urethritis, hydrostatic irrigations are extremely useful.

Better results are attained with much less danger of trauma, by the judicious use of the modern silver salts, injected with the small hand syringe. Many of these are available. A weak solution in the beginning gives better results than the strong solutions usually recommended; as the case progresses and the inflammation subsides, the strength of solution may be increased, but never to the point at which it causes pain or irritation. The anterior urethra should not be distended with the solution; distension may injure the mucosa. Treatment should be begun at the earliest possible moment; nothing is gained by waiting.

It may be desirable to change from one silver preparation to another from time to time, because of the tendency of bacterial organisms to develop a form of "fastness" when attacked by the same chemical product continually; also because there are many strains of gonococcus, some of which react to one chemical while others react to another.

Persistence of gonococci after three or four weeks of treatment is suggestive of prostatic invasion, even though there be no clinical manifestations of such invasion. The prostate and seminal vesicles should be examined and appropriate therapy instituted, in these cases.

When the urine clears and gonococci can no longer be isolated, an astringent, preferably zinc sulphate, 1:200, is indicated; this is followed by moderate urethral dilatation and several weeks of observation without treatment.

Certain cases run along smoothly as anterior infections of mild type and suddenly show purulent urine in both urine glasses, indicating posterior involvement, usually without posterior symptoms. Careful massage of the prostate shows the presence of a low-grade chronic prostatitis and vesiculitis, probably non-specific in character. Urine voided after gentle massage contains much pus and detritus, but no gonococci. Appropriate treatment clears up this old infection, at the same time protecting the prostate and vesicles against extension of the acute specific infection from the anterior urethra. If these precautions are not taken in time, the inflammation extends to the posterior adnexa, with all the symptoms and tendencies of a posterior specific infection. It is therefore advisable to examine the prostate in every acute case and thereby prevent potential posterior invasion.

Additional methods of therapy have been devised within recent years, which, though valuable, have not yet established their permanent therapeutic status. They aim to utilize the natural forces of the body in resisting the attack of the invading organisms. The oldest is the use of vaccines, but the concensus of opinion is that vaccines are not of any particular value in acute gonococcal infections. Foreign protein therapy is more effective as a rule, the principal substances employed being sterilized or boiled milk, turpentine and typhoid vaccine, injected intramuscularly. Several modifications of this method have been employed with much success. Autoserotherapy utilizes the blood of the patient for reinjection, and is said to be effective, especially in the presence of complications.

Intravenous injections are used to stimulate the natural forces by the creation in the body of some substances, which in turn act on the invading organisms. Mercurochrome 220 is typical of the substances employed in intravenous therapy. Its permanent status is still unsettled. Acriflavine, and more recently metaphen have been similarly used, at times with striking results, but it is still too early to predict their ultimate place in the

therapy of acute gonorrhea. The same may be said of the original method of oxidation and reduction devised by McDonagh, of England, which has been highly praised and equally highly condemned.

Diathermy aims to destroy the gonococcus by the application of heat to the tissues and the stimulation of the natural forces of the body. In acute anterior infections, the method has not been as successful as in chronic conditions, especially with complications, in which condition it is of great value.

In acute posterior involvement, the less local treatment the better. Conservative therapy applied to the anterior urethra usually controls the posterior infection; in certain cases, intravesical irrigations with the large hand syringe are useful. Certain posterior cases are frankly malignant in character from the outset. They are destined for complications, and these usually occur, under routine treatment of the posterior urethra. As a prophylactic against the development of complications, nothing acts as quickly and efficiently as vasotomy. This not only cleans out the vesicles and vasa, but changes the entire aspect of the inflammation, giving it a more benign character. Diathermy also acts efficiently in these severe cases, but its action is slower and less reliable than that of vasotomy. Chemotherapy, as advocated by McDonagh, is said to abort severe prostatic infections with impending complications.

For acute seminal vesiculitis, nothing compares with vasotomy and diathermy. Personal preference is given to the former. Injection of Pregl's iodine solution directly into the infected seminal vesicles through the rectum, is practiced with success by Stelwagon.

Epididymitis is best treated with diathermy; when pus is present, Hagner's epididymotomy is indicated. Intravenous therapy also is employed, especially the use of sodium iodide alone or in combination with hexamenamine. Non-specific proteins and vaccines have a large field of usefulness when this complication is present. Young has injected mercurochrome directly into the inflamed epididymis, while Luys, of France, has used the same method with electrargol, with success. Whatever therapy may be employed for the acute epididymitis, attention must be directed to the infected vesicles as soon as the epididymal in-

flammation has subsided; otherwise a chronic inflammation will persist.

Arthritis is treated in the light of a metastatic infection from the seminal vesicles. Vasotomy is the preferred therapy; its results at times are very startling. Diathermy also acts well. Stelwagon's injection into the seminal vesicles acts favorably on the arthritis. The treatment of acute arthritis is directed at the seminal vesicles primarily. Vaccines, foreign proteins, and intravenous injections have their place in the treatment. The main thing is to reach the infection in the seminal vesicles and the joint will take care of itself.

Summary

The high lights of modern therapy of acute gonorrhea are the following: Silver salts locally, copious water intake internally, supplemented if desired by an alkaline solution or one of the new chemotherapeutic preparations; avoid overtreatment at all times; examine the prostate in all acute cases for an old non-specfiic prostatitis; in posterior involvement, the minimum local therapy is the desideratum; acute complications may be averted by the employment of vasotomy and diathermy; diathermy is almost specific for epididymitis, vasotomy for acute arthritis and seminal vesiculitis. Future progress lies in the direction of utilizing the natural forces of the body to combat the bacterial organisms.

MODERN TREATMENT OF CHRONIC URETHRITIS

Joseph A. Hyams

Chronic urethritis is due to causes which are practically all preventable. Education of the patient is the most important measure at our command, in preventing the complications and further dissemination of the disease as well as expediting its cure.

Rigid routine examination is essential, having constantly in mind the possibility of a serious underlying urogenital condition. The three most frequent causes of a chronic discharge are large calibre structure, infection of the urethal glands and prostatitis and vesiculitis.

Treatment is based on a knowledge of the location and extent of the disease. It often calls for the use of all our diagnostic acumen and therapeutic measures. The natural immunity of the patient is an asset, and constitutional treatment is often necessary to maintain it.

When gonococci are present, our first aim is their destruction by recognized therapeutic measures,—silver and silver salts, potassium permanganate, etc., irrigations, instillations, and heat. Do not instrument unless indicated, in the presence of gonococci.

Urethroscopy is important in clearing up of pathology of the urethra. Recent work by Joseph F. McCarthy, J. Ritter, and others, indicates that pathology of the seminal vesicles is not as common as previously taught and is localized to the ejaculatory ducts. Treatment of these structures may be necessary and advisable, and is worthy of further investigation.

THE ROLE OF THE GONOCOCCUS IN STERILITY

MAX HUHNER

The gonococcus itself does not cause sterility in either sex. It is only the pathological changes which it sets up in the genital organ of either sex, which is the cause of the sterility. There is absolutely no antagonism either between the gonococcus and the spermatozoön or between the gonococcus and the ovum. This has been experimentally demonstrated by me for the male as long as 14 years ago.[1] I placed semen containing live spermatozoa on a slide, mixing it up with virulent gonorrheal pus, without noting any change in the motility of the spermatozoa. Clinically this has been proved both in the male and female. A man suffering from an acute virulent gonorrhea may impregnate his wife and give her gonorrhea at the same time. A woman suffering from gonorrhea may become impregnated and bring forth offspring. Cases are on record, where a woman suffering from acute purulent gonorrheal salpingitis has been impregnated, showing that the gonorrheal pus, containing viru-

[1] Huhner, Max. *Sterility in the Male and Female.* Rebman Company, New York, 1913.

lent gonococci has no dentrimental effect either on the ovum or the spermatozoön. Even prolonged contact of gonococci with spermatozoa does not appear to hurt the latter. It is not at all unusual for a man to marry, who honestly believes himself to have been cured of a gonorrhea. Yet such a person may harbor gonococci in his prostate and seminal vesicles years after all clinical signs of his gonorrhea have disappeared, and may impregnate his bride and infect her with gonorrhea, showing that the prolonged contact of spermatozoa and gonococci in the seminal vesicles do not interfere with the reproductive qualities of the spermatozoa.

The role of the gonococcus in the production of sterility consists therefore in its producing pathological changes in the reproductive organs in both sexes. Let me rapidly run over these changes.

In the male, starting with the testicles, I have found that gonorrhea will at times destroy the spermatogenic function of these organs, at least for the time being. This has been demonstrated by me in my experiments with aspiration of the testicles. I have found persons who have had children, and who later acquired gonorrhea, that during the attack, no spermatozoa were found in the testicles on aspiration. In other cases they were found, showing that the effect of the gonococcus on the testicles varies in different cases.

In the epididymi and vasa, the gonococcus sets up inflammatory changes which lead to permanent occlusion of the ducts. This is the most frequent cause of sterility in the male, and is so well known that further discussion is unnecessary. I wish to mention, however, that the inflammation may be so slight as not to cause any clinical symptoms, but enough to cause occlusion and so produce sterility. In these cases, condom specimens will always show absence of spermatozoa, while the fluid taken from the testicle itself by aspiration will show spermatozoa, demonstrating that the couse of the azoöspermia is in the tubes.

Theoretically, we might expect to find occlusions in the ejaculatory ducts, similar to those found higher up, but clinically such cases are exceedingly rare. This has been amply demonstrated by the probing and catheterizing of these ducts through the modern urethroscopes. Moreover in such condi-

tions there would also be aspermia (absence of any semen on ejaculation) which is a very uncommon occurrence.

The changes produced by the gonococcus in the secretion of the seminal vesicles may at times result in necrospermia, with resulting sterility. This again is uncommon. Condom specimens showing normal live spermatozoa in sufficient numbers, have shown on culture the presence of gonococci, again demonstrating the lack of antagonism between gonococci and spermatozoa.

In the urethra, gonorrhea may, of course, produce such a tight stricture as to interfere seriously with ejaculation. Clinically, however, sterility due to this cause is at present of not common occurrence. Even impotence does not necessarily cause sterility.

Coming now to the female, we may say that, in the vast number of cases, sterility is due to pathological conditions set up by the gonococcus either in the cervix or in the tubes. Owing to its histological structure, the *adult* vagina does not harbor gonococci for any length of time. Those cases in which gonococci are frequently found, have been definitely proved to be caused by continuous reinfections, either from a gonorrheal cervix or from cohabitations with an infected partner.

In the cervix, the gonococcus frequently sets up an endocervicitis, which so alters the normal cervical secretions that the spermatozoa are either killed by them or are entangled in the mucus and prevented from going higher up. This latter condition is frequently seen when employing the "Huhner Test." Under the microscope, one sees live spermatozoa in the mucus removed from the cervix, which, however, do not dart about the field as normal spermatozoa do, but are stuck either by their heads or tails in the mucus, the free portions wiggling about in their frantic efforts to escape. I would remind the reader, however, that this picture is *not* pathognomonic of gonorrhea, as other forms of endocervicitis may have a similar effect on the spermatozoa.

While gonococci have been found in fundus uteri, they do not linger there for a long time, unless there is a constant reinfection from pus tubes. In other cases observed, the patient had been regularly exposed to reinfections from cohabitations with an

infected partner. It has been supposed that the gonorrhea so alters the uterine endometrium that it becomes unfavorable for the nesting of the impregnated ovum. Nevertheless, pregnancy has occurred in the presence of a severe purulent gonorrheal inflammation of the decidua.

Coming now to the fallopian tubes, it is here where we find the chief cause of gonorrheal sterility. As is well known, the gonococcus causes an inflammation of the tubes which results in complete closure with consequent sterility. While this condition had been suspected for many years, it was not till the advent of the Rubin Test that it has been proved in so large a number of cases. The occlusion of the tubes as well as the Rubin Test are too well known to require further discussion. One word of caution, however, is necessary, and that is that there are many other conditions besides gonorrhea which may cause occlusions of the tubes. It should therefore be employed in every case of female sterility whether or not there is a history of gonorrhea.

Coming finally to the ovaries, we may briefly reiterate that here also it is not the gonococcus itself, but the pathological conditions brought about by it, which is the cause of the sterility. As a general rule, it is only when there has been produced such a productive inflammation, which completely imbeds the ovaries in masses of adhesions or causes such thickenings of its tunica, as to interfere mechanically with ovulation, that sterility due to gonorrhea results.

THE SURGICAL COMPLICATIONS OF GONORRHEA IN THE MALE

HOWARD S. JECK

In acute gonorrheal urethritis, the surgical complications fall chiefly into two groups, viz., (1) those of the pendulous urethra and (2) those of the deep urethra. Of group one the chief complications are: peri-urethritis, peri-urethral abscess, cowperitis, balanoposthitis, abscess of the urethral glands, spongeitis, cavernitis, lymphangitis and lymphadenitis.

Of group two should be mentioned: epididymitis, prostatitis, prostatic abscess, peri-prostatitis, peri-prostatic abscess, seminal vesiculitis, renal infections and the various metastatic lesions. Urethral stricture is common to both groups. Pelvic peritonitis and gonorrheal cystitis are both extremely rare.

The following complications, which are those most frequently encountered, are the only ones discussed:

Gonorrheal epididymitis may at times be confused with non-specific epididymitis, orchitis or torsion of the testicle. Treatment is surgical (epididymotomy) in six per cent. of cases. Non-surgical treatment consists of a properly applied adhesive plaster suspensory and rest in bed.

Prostatic abscess and peri-prostatic abscess—Exquisite tenderness, which persists, acute retention and fluctuation are the main diagnostic points. If the abscess is wholly within the prostate, the "sound" operation is indicated. If the abscess is peri-prostatic or both intra- and peri-prostatic, open operation (extra urethal) through the perineum should be done. External urethrotomy is performed only when the pathological process involves the urethra.

The diagnosis of *urethral stricture* may be erroneously made if the patient fails to relax and cooperate with the surgeon. The mistake in diagnosis is not discovered until proper relaxation is had by means of an anesthetic.

Uncomplicated strictures of the pendulous urethra almost *always*—uncomplicated strictures of the deep urethra almost *never*—require urethrotomy.

Abscess of the urethral glands (frenal) requires free incision from without in—not by intra-urethral approach.

THE USE OF DIATHERMY IN ACUTE AND CHRONIC GONORRHEA

Leo L. Michel

In reporting the results of clinical experiences with diathermy briefly considered, the action is primarily one of heat, in biterminal application of the oscillating current of high fre-

quency, causing the generation of heat within the tissues, between which the currents pass. The heat is equal at both terminals, and therefore inversely proportional to the size of the electrodes. The amperage should not exceed 100 milli-amperes per square inch of the larger electrode.

Former methods of applying heat in gonorrheal infections have been inadequate. Diathermy currents are under control, and may be mono-polar or bi-polar. The mono-polar (Oudin) is used for fulguration. The bi-polar current is used medically or surgically in gonorrhea. Surgically (less logically called Endothermy) this is a cutting current of use in such conditions as phimosis, dorsal slits, and pin-point meatus. It prevents metastatic infection by sealing off as it cuts blood and lymph vessels.

It is in the so-called *medical* application of bi-terminal diathermy that the high frequency current in gonococcic infections plays its most important role.

Acute Anterior Gonorrhea

In a series of 200 cases of acute primary anterior infections, diathermy was applied for one hour each, with every known applicator, but without encouraging results. Combined with intra-urethral injections, the disease was not especially shortened, and no particular advantage was observed. Where instruments were used intra-urethrally to apply diathermy, using precautions preceding instrumentation, complications were invariably noted in the acute cases. These observations differ from English and other observers.

Chronic Anterior Gonorrhea

In the chronic anterior group of cases, condylomata, papillomata, cysts, follicles, and infected crypts were easily destroyed. Diathermy applied through the dilating electrodes and Kollman dilator, in the soft and hard infiltrations, gave good results. Tight strictures responded better to the author's method of negative galvanism. Diathermy is applied to the posterior urethra, at the first suspicion of an extension of the infection. In this manner we usually prevent the distressing symptoms of an acute posterior infection, probably aborting the disease in this location.

Diathermy is of greatest use in the posterior infections.

Acute Posterior Gonorrhea

The pain of the acute posterior infections was completely controlled with a one hour treatment, applied to the prostate and vesicles through an especially devised Michel electrode, made by Wappler. Eighty-six cases of acute prostatic abscesses under treatment cleared up symptomatically. Not any of these cases required surgical intervention.

Chronic Posterior Gonorrhea

In chronic infections, the post-gonorrheal prostatitis and seminal vesiculitis gave better results with diathermy applied through posterior electrodes, urethal and rectal, combined with irrigation and massage than with any other treatment at our command.

Arthritis, Acute and Chronic

These arthritides ofttimes respond nicely to diathermy when diathermy is properly applied.

Epididymitis Acute

Diathermy usually controls the pain, but is *not* specific. It usually requires four to six treatments for full control of pain. Absorption of exudate was quicker than with any other treatment. The treatment was combined with vaccines, iodides, rest and support.

Attention is called to a complication sometimes arising with the first application of diathermy, especially in elderly men, a reaction simulating urinary fever, never seen to occur with daily treatments, therefore diathermy is applied daily to these cases.

Summary

The use of diathermy has resulted in the following:

I have not had successful results in acute anterior gonorrheal urethritis. Abortive therapy has been aided somewhat, but experience has been too limited. In the chronic or subacute anterior inflammations, we have obtained better results.

In the involvement of the posterior urethra, prostate and seminal vesicles, either acute or chronic, diathermy has given

brilliant results, surpassing any other form of treatment known to us. It is in these conditions, previously beyond the remedial measures of the attending physician, that diathermy has proven itself. I may say at this time that we have had no occasion to render surgical intervention in posterior gonorrhea, since utilizing diathermy in the manner stated.

At this time I can but touch upon the subject of diathermy in gonorrhea of the female. The primary principles are the same. The application alone is different. I may also say that in women it has been my experience that I can do more in less time, with chronic gonorrhea, than I could do formerly.

I may be permitted to state that by the use of a new electrode, devised by me, and made by Wappler, chronic endocervicitis is controlled in one or two sessions. At some future time I will dilate upon this subject.

Section of Ophthalmology, November 21, 1927

TRAUMATIC OCULAR PARALYSIS WITH RETRACTION MOVEMENTS

ARNOLD KNAPP

The patient, sixty years of age, had an ethmoid operation on his left side in June, 1926. He was then seen a few days later by Dr. E. Waldstein, who found a paralysis of the internal rectus on the left side. One year later I saw the patient, through the courtesy of Dr. Waldstein, and found the condition the same as it is at present. In the primary position the left eye is deviated outward 40°. In moving both eyes to the right, the left eye comes to a full stop in the median position, when there is a widening of the palpebral fissure and apparently a protrusion of the eye, together with a slight tendency of the eye to go downward. When the eyes are moved to the left the action of the external rectus is entirely one of retraction. The eye is pulled into the orbit and the palpebral fissure gets smaller. The sight and the eye ground in both eyes are normal.

Dr. Knapp thought that the condition could be explained by a separation of the internal rectus tendon, with union of this separation to the inner wall of the orbit by scar tissue, whereby no action of the internal rectus was possible; and through the fibrous band the relaxation of the internal rectus did not follow on attempted contraction of the external rectus, and the external rectus could therefore produce only a retraction movement.

METHODS FOR PREPARING SUCCESSFUL EYE SPECIMENS GROSS AND MICROSCOPIC

LOUISE H. MEEKER
WARD H. COOK
(From the Department of the Laboratories, New York Post-Graduate Medical School and Hospital)

This paper is intended to outline an original method for the preparation of gross eye specimens and a method for microscopic sections that we find most satisfactory. The first has enabled us to augment our teaching equipment and the second to present faithful histological pictures.

1. *Examination*

The purpose of the laboratory examination of eyes is to study in detail the conditions recognized clinically.

To facilitate the examination in the laboratory the eye should be marked. The marking may be done by the operating surgeon before enucleation, by touching the bulb with silver nitrate near the lesions, or by using thread. Another way is to consult the pathologist and point out the pathological areas as observed in life. This latter plan is the better.

After enucleation the pathologist carefully marks the indicated areas to make certain that they are included in the microscopic sections. This is necessary because certain fixing fluids render the eye opaque at once and greatly obscure the landmarks present in the living eye.

2. *Fixation*

After the eye is marked the next step is fixation so that the picture as seen in life may be preserved unaltered. On no condition should the eye be opened before fixation (freezing is not recommended), for the entire contents of the bulb may escape.

Greeff (1) states in his "Guide to the Microscopic Examination of the Eye:" "The eye in virtue of its peculiar form and composition demands treatment differing in many respects from that sufficient for organs which are more uniform in structure and the precise relation of whose parts is less important to preserve."

The various fixing solutions in common use are unsatisfactory as Verhoeff (4) has pointed out with considerable emphasis. He stresses the frequent artificial detachment of the retina and shrinkage of exudates and ocular tunics after formalin fixation. He states that Zenker's fluid is an uncertain fixing re-agent and recommends mixing formalin with a weak alcoholic solution, adding a final word to the effect that this mixture is by no means a perfectly ideal fixing solution.

Greeff (1) nearly thirty years earlier had noted the "great shrinkage of the vitreous and almost artificial detachment of the retina" when Müller's fluid was the usual fixing reagent for eyes.

We have used Zenker's solution with 5% acetic acid and have added 10% formalin for the fixation of our eye specimens. Formol-Zenker is an old fixing solution but seems not to have been used for eyes. We find that it penetrates quickly, preserves all the ocular structures accurately and permits the later application of many histological stains. The solution should be freshly prepared because oxidation takes place rather quickly.

It has been our custom to prepare the fixing solution shortly before the enucleation. The fixing fluid should be about ten times the bulk of the eye, 110 cc.

Formula: Zenker's solution—95 cc
Acetic Acid (glacial)—5 cc
Formalin—10 cc

After the bulb has been immersed in the fixing solution about two hours small windows are cut in the sclera and the eye replaced in the fixative for 24 hours, then washed in running water

24 hours and placed directly in 80% alcohol. Razor blades are excellent for cutting the sclera. Cut the eye tangentially at opposite poles avoiding the planes to be studied later. Until the sclera is opened the eye always floats in the fixing solution. To insure uniform penetration it is, therefore, well to cover the specimen at first with a thin layer of absorbent cotton.

From now on the usual routine is followed as with any tissue. By our method of fixation the retina remains in proper position, the tissues do not shrink and all elements are well preserved. (Fig. 1).

3. *Sectioning*

After fixation is completed the eye is ready to be cut into sectors as planned from the beginning, that is, the pieces are cut out that are to be embedded in paraffin or celloidin. The cutting is done after the manner described by Greeff (1) and Verhoeff (4). Incisions are made in a plane parallel to the optic axis passing about 0.5 mm. inside the corneal limbus and just missing the lens. It is customary to section the globe in the horizontal plane unless there are lesions best studied in a different plane and to include cornea and papilla in the section with the special lesion to be studied.

The specimens we are showing have been embedded in celloidin by the slow method. After embedding in celloidin the usual microscopic sections are made and stained as may be needed.

Thick sectors are left over uncut and remain embedded in the celloidin. They are placed in 80% alcohol and as a rule either forgotten or thrown away in the course of time. These celloidin blocks become white and opaque and have no apparent value.

We have discovered, however, that these seemingly useless celloidin blocks may be reclaimed and made into excellent gross mounts useful for teaching purposes. This is accomplished by testing with oil so that the celloidin becomes clear and invisible while the section of the eye remains unaltered. The clearing of specimens is an old process. Spalteholz's (3) clearing method is well known.

Our method makes use of clearing oils following a suggestion in Guyer's (2) "Animal Micrology." So far as we know we

are the first to apply the method to unstained eyes embedded in celloidin for the purpose of making gross mounts.

4. *Clearing*

The process of clearing may be applied to new celloidin blocks or to old celloidin blocks, even those 20 years old. Several of our most successful preparations are celloidin blocks kept in alcohol about 20 years.

The method is as follows:

Cut block as desired, keeping as thick as possible. Thin blocks may curl and if this happens they must be re-embedded.

1. Place in 95% alcohol 24 hours to remove most of the water.

Subsequent steps admit of two procedures, one short (A) and one long (B).

A. *Quick Method*

2. Solution (95% alcohol 1/3)
   (Oil of Thyme 2/3) 24 to 48 hours
3. Solution (Oil of Thyme 2/3)
   (Castor Oil 1/3)

To remain in this until clear (one to several days).

4. Solution (Oil of Thyme 1/3)
   (Castor Oil 2/3)
5. Castor Oil.

B. *Slow Method*

Castor Oil only for days, weeks or months or *until perfectly clear.*

The oil of thyme must be distilled until colorless (one to three times), and be kept in the dark. The castor oil must be as nearly colorless as possible; Baker's cold process, "Crystal Castor Oil" approaches whiteness more nearly than any we have been able to procure.

After the clearing process the celloidin is invisible and the eye restored to its appearance before embedding.

This method is not intended to replace other methods of preparing gross mounts of eyes. It is an added method and permits a double use to be made of the celloidin blocks: (1) Gross specimens, and (2) Microscopic sections of the same.

The cleared blocks may now be mounted in castor oil in the usual museum jars for eyes and placed in a special cabinet as

pictured. (Fig. 2). The blocks are suspended by German silver wires to frames of glass rod. The outlines beside each eye are intended to assist the student to recognize the striking pathology. The eyes are visible from both sides and by proper lighting and some magnification considerable information may be obtained. A background of ground glass gives a pleasing effect when artificial illumination is employed.

Bibliography

1. R. Greeff—Text-book—"Guide to the Microscopic Examination of the Eye." Berlin, 1898.
2. M. F. Guyer—"Animal Micrology." Univ. Chicago Press, pp. 64-65, 1917.
3. W. Spalteholz—Enzyklopädie der mikroskopichen Technik. (Not available.)
4. F. H. Verhoeff—"Contributions to Ophthalmic Science." Jackson Birthday Volume 47, March, 1926.

TRAINING OF THE BLIND IN GERMANY

Miss Betty Hirsch

I certainly deem it a great privilege to be allowed to speak here to-night, as I know that only scientific questions are taken into consideration in these meetings, and I am by no means an expert in medical science. But as the work about which I am going to speak has been built up by the help of one of our greatest eye doctors, Professor Silex of Berlin, I hope you will be a little interested in the results which we have obtained.

When I was asked for the title of my speech tonight I forgot one word, and that was the word "adult," for I am not going to speak about the education of blind children or blind young people in institutions, as they are almost the same in all countries, and I have seen so much good work done in this direction while traveling around in this country; but I want to speak about the training of our blinded soldiers and blind adult civilians, as the condition of our adult blind persons in Germany has completely changed since the war.

I have been asked by some eye doctors to tell them my opinion as to how to prepare grown persons for their future blindness if their cases are hopeless, and as I have had in the past several years the opportunity of training hundreds of grown persons in this direction I may say that I can speak out of experience. But before I pass over to this subject, I want to say a few words about the word "blindness" itself. Do not become sad, because I am not going to tell you anything sad. On the contrary, I want to say that it is a great mistake to look upon blindness as misery. It is of course a handicap, but this handicap can be eased much more than the sighted people think if they do not themselves make the blind person unhappy, of course without knowing it, by pitying him instead of learning to understand his position and helping him to feel that he is a normal human being. Seeing persons only too often forget that life, with all of its interests and activities, does not come into us from the outside but that it must be created in our minds and brain. A person with healthy, normal, open eyes can go through life without realizing or comprehending the outer world or life itself, while a blind person usually has a clear picture of life and its contacts impressed upon his mental vision. I think it seems like "carrying coals to Newcastle" when I speak about this subject here in this country where you have a Helen Keller. Another example I would like to mention is our greatest musician of all time, Ludwig Von Beethoven, who composed the most divine music when he was perfectly deaf. Did this music come from outside into his brain, or did he hear it with an inner sense? I think this question answers itself.

I think if persons who have the gift of sight would realize this they would not find so much difficulty in preparing an adult person for future blindness. Even the great Professor Silex, who throughout his life has done so much good for his patients and for blind people, shrank from telling our soldiers the truth about their condition and very often sent them to me; and the task was sometimes not very easy.

After all of the experience which I have had in this direction I am of the opinion that a doctor as soon as he knows that there is no hope of saving the eyesight should begin to prepare the patient for his blindness, and not only that, but he should

try to get someone to begin the training of Braille and other things, so that the patient may become accustomed to this work before complete blindness sets in. I know from my own experience and from many other cases that this is a great help in such instances.

These were my thoughts when the cruel war began and the blinded soldiers came home from the front. At the beginning of the war I was in England and I stayed there in order to attend a course at the University of London, so I did not get back before the middle of September, 1914. When I arrived happily back in Germany I decided to devote my strength and the rest of my life to these unhappy men who had gone to the war healthy and as free and independent persons, and now came back home broken and blinded and did not know what to do. I found the first five war blinded in the private hospital of Professor Silex, and I went to him and asked if he would allow me to go and cheer his patients up a little and give them instruction in reading and writing. He willingly consented, and on November 22, 1914, I went for the first time to see these men. I found them willing to begin learning, and I taught them reading and writing, Braille, and typewriting. They cheered up very soon, and when this was known in the Ministry of War they sent us for the next few years all of the blinded soldiers who came back from the front. Later on they sent them to their different provinces. So we had throughout the war 600 of them in our school. There are in all 2700 war blinded in Germany. After they had learned reading and writing they then wished to learn other work and to go into professions and business life again. This created some difficulty, because Professor Silex and I soon realized that we could not put these men into blind institutions, homes or asylums, but the men themselves were a great help to us. We had people of all the different classes of society, different professions and different abilities, and we had to separate these into three main divisions. In the first group were men who had had higher educations, such as teachers, officers, students and so on. They were instructed in our school in Braille, German and other languages, ordinary typewriting and medical notation, and then they went to the different universities to study on. They graduated, got their

degrees and went into physicians' and Administration offices. The teachers we got with great difficulty into their former schools for seeing children where they work very successfully. They teach music, chorus singing, history, languages, etc.

The second group were the middle educated people who had been clerks or similar business men and who wanted to get into the business world again. They were trained as typists, stenographers and dictaphone operators. We made some little adjustments on the common typewriters which enabled the blind typists to do the work quite as perfectly as their seeing colleagues. We produced German commercial stenography in Braille and had a stenographic machine made for that purpose. Then there were many men who had been employed by the Post Office. The Postmaster General of Berlin gave us his help in getting these people into the Post service again. Some became telephone operators; some did other things, such as folding telegrams, and so on. One of the soldiers himself helped us to a new occupation. He had been a book binder before the war and now undertook mending documents. He got along very well, and was engaged in the office of the County Council in Berlin. After his service hours he came to the school and taught his comrades this work, and now we have eighty document menders in all in the Administration offices in different towns. Securing positions for our typists was very difficult, because of the prejudice of the employers. When we had trained eight typists we invited the Aldermen of the County Council of Berlin to come and see these men work. They were much surprised and praised the work, but when we asked them to employ some of them, one of the Aldermen said that there was not such a law yet, but another replied, "Then we must have one made," but the law was not made at that time (that was in 1916). Nevertheless, some days later they sent for two of the typists, and thus came about the introduction of this profession for the blind which is now so generally known in Germany. Then there were in this second division many who had formerly been farmers, and through the kindness of a Count we had for two summers the use of one of his castles, with the grounds, and gardeners who trained the men to do again their former work. Many of them then got a little settlement, with some acres of land which they tilled them-

selves. We were able to train only ten or twelve people in massage, because the doctors in Germany do not like this profession for the blind, while in England there are two hundred blind masseurs and eighty of the greatest doctors there recommend them to their patients. The few men whom we trained took their examinations amongst the seeing masseurs and secured positions in hospitals.

Then the third and largest division had to be considered. They were people without much education, who had been laborers, factory workers, etc., before they became blind. In this group also there was one of the soldiers who gave us an idea. He had been a blacksmith, and he told us that he would never do any work other than connected with iron. I happened to be teaching a little blind girl, the daughter of the Director of our great munitions factories, Spandau, Berlin, and I asked him to give me the opportunity of trying some work in these factories. I had to get the permission of the Ministry of War, and then I went to the factories, sat down amongst the laborers and tried many of the works myself. I showed the Directors that it was possible for a blind person to manage the work, and they engaged five of our people. Very soon there were more than twenty or thirty blind workers in all of the different factories in and near Berlin.

This was the beginning of a new era for civilian blind people too. After the war, when millions of men came home from the front to be employed there was great difficulty in finding work for the blind, but out of the more than one million heavily disabled men a union was formed and the men themselves brought before the Government a petition for a law covering the employment of disabled blind. The law was passed in 1919, covering war blinded soldiers. In 1923 there was an amendment to this law, whereby a provision was made for the employment of blind civilians. Afterwards accidentally disabled civilians also came under this law.

Here are a few paragraphs of this law:

All employers who employ at least twenty healthy people are required to employ one heavily disabled. For each fifty healthy employees additional, he is required to employ one more disabled.

Employers to whom this law refers are private enterprises and corporations and public institutions and Administrations.

The disabled who come under this law are persons who are at least 50% handicapped either by war or by accident in civilian life, and those who are blind, deaf and so on.

An employers who does not want to employ a disabled is allowed to give him a settlement of his own, or to put him in a a tenant.

The General After-care Departments for heavily disabled have to work together with the employers in the interest of the disabled. They have to consent if a warning is given to a disabled, and this warning has to be given at least four weeks before dismissal.

If an employer violates the requirements of this law he has to pay a fine of from one to one thousand marks. If a disabled violates this law the Department can withdraw the advantages of the law from him for a time.

The disabled choose men of confidence, who work together with men of the business staff and the men thus chosen work together with the General After-care Department in the interest of the disabled.

When this law went into effect it was wonderful to see how the blind civilians in Germany awoke to independence and self-reliance. They came to us and asked to be trained in the new vocations, so that they might secure work which would take them out of their former conditions, in which they had been dependent on charity, homes and asylums. The Employment Bureau at the Statistical Department in Berlin did a splendid work, the result of which you may see by the following table.

From 1919 to 1926 war and civilian blind persons were given employment as follows:

War Blinded	*Civilians*	*Nature of Employment*
81	106	Metal Industry
4	12	Chemical Industry
0	16	Paper and Cardboard Industry
0	5	Wood Industry
14	43	Food and Victuals
4	28	Textile and Clothing
2	11	Graphical Industry

War Blinded	*Civilians*	*Nature of Employment*
107	52	Offices
16	47	Professions (three)
6	194	Industries for the Blind
8	18	Mixed Professions
Total 242	532	
Combined Total	774	

This is certainly a good result when one thinks of the condition of these poor people before the war, and it is a great joy to see how much happier these blind people are who work amongst the seeing, make the same money and are considered as useful members of society.

At the beginning of the war when some of the blinded soldiers came home the Grand Duke of the Province of Oldenburg introduced the idea of training dogs as guides for the men who were suddenly dependent on their families or friends if they wished to move about. This training has been extended to a high degree, so that now sixteen hundred of our war blinded are guided by dogs, and blind civilians have also asked for these guides. In Oldenburg and in other places in Germany there are special buildings for this purpose; the largest is in Oldenburg itself. There are large kennels for the dogs, grounds filled with all sorts of obstacles and a home for the blind men. Shepherd dogs are brought to these places and seeing trainers do the first work. In about a quarter of a year a dog is trained. The seeing trainer works like a blind man and tells the dog what to do when coming to an obstacle. For instance, when there is a step the dog sits down and does not move until his master has examined the obstacle with his cane. When there is a post or a lantern or anything which might result in an injury if there were a collision the dog draws back and does not go on. If the master drops anything the dog retrieves it and puts it into his hand, and so on. The love of the dog and the blind master for each other is very touching, and the blind man mourns as if he had lost a member of his family when the dog dies or suffers an accident. Many of the blind men can get about only by the help of these dog guides. In the country and in smaller towns the dogs are very satisfactory, but in large cities at street crossings

where there is much traffic the men of course are sometimes obliged to ask for the help of other pedestrians. As a whole, however, the dogs serve very well indeed and the men would keenly feel the loss if they were deprived of their faithful companions.

Section of Obstetrics and Gynecology

INTRALIGAMENTOUS PREGNANCY (FULL TERM)

M. O. Magid

Patient 26 years old, married two years. Menstruation began at 17 years, regular, 28 day type lasting three days, moderate amount and painful. She consulted me July 2, 1924, complaining of pain in the lower abdomen, more on the left side, and profuse leukorrhea. She gave a history of having had a dilatation and curettage one year previously. Physical examination showed a profuse vaginal discharge, lacerated infected cervix. The uterus was small, anterior in position, slightly limited. Both adnexa were palpable and tender.

On July 16, 1924, I performed a tracheloplasty. Her complaints were markedly relieved. On April 5, 1926, I was called because the patient had amenorrhea since February 20, 1926, nausea, vomiting, faintness and weakness; these symptoms having lasted about two weeks, mostly in the mornings. Physical examination revealed an enlarged soft uterus. Adnexa could not be felt. There was no tenderness in the fornices. On April 16th the patient began to bleed and had some abdominal pains. I sent her to the Bronx Hospital with a diagnosis of threatened abortion. This diagnosis was confirmed by other members of the staff. The patient left the hospital in ten days, all pains and bleeding having ceased.

The pregnancy continued without serious complaint except for a general weakness and morning nausea. Quickening occurred in the latter part of July. The urine had been negative; the blood pressure 120 systolic over 80 diastolic varying very

little up to October 5, 1926, when it rose to 140 systolic and 90 diastolic. The urine then showed heavy trace of albumin. The lower extremities showed some swelling. On October 27th the urine almost boiled solid and showed red blood cells and many pus cells. The blood pressure rose to 150 systolic over 100 diastolic. The patient complained of severe headache and insomnia.

On November 1, 1926, the patient entered the Hunts Point Hospital. Here, with enforced rest in bed, and with proper dieting and nursing, she began to improve in kidney function and the blood pressure came within the normal range. The headache and insomnia disappeared. Examination of the abdomen showed the fetus in the transverse position, the head lying on the left side. The fetal heart could be heard at a point to the right and a little above the umbilicus.

During the night of November 7th the patient had severe pains coming at regular intervals. Vaginal examination showed the cervix was not obliterated, was soft and os was patulous. No definite presenting part could be ascertained. The patient was comfortable the next day, but in the evening she complained of not having felt any fetal movements during the entire day. At this time the fetal heart was not audible at the point previously marked nor at any other part of the abdomen.

Even though the fetus was not viable, abdominal section was decided upon as the only safe and quick means of relieving this patient, because of the type of pelvis she had (generally contracted), malposition of the fetus and her pre-eclamptic state.

On November 9th, in opening the abdomen I found, instead of the uterus, a tumor mass on the left half of which were three large venous sinuses running vertically. The omentum was markedly adherent to the anterior surface of the tumor. In separating the omentum, several large blood vessels were seen to enter the wall of the tumor. Incising the tumor to the right of the sinuses, a cavity with a thinned-out wall was entered. The fetus, which showed early signs of maceration, was removed. The cavity collapsed, the umbilical cord led down to the bottom of the cavity. The enlarged uterus was in evidene to the right of the median line. The patient was bleeding actively from the sac. The placenta, being partially detached, was entirely re-

moved and a large gauze pack was put to the bottom of the cavity to temporarily control the bleeding. The broad ligament was ligated and as much of the leaves cut away as was safe on account of the intestines being adherent to the posterior layer. What remained of the cavity was repacked and the abdominal cavity was closed. Stimulation and forcing fluids by hypodermoclysis helped to overcome the shock. Two and a half days later the patient expelled a decidual cast from the uterus. The patient was discharged December 22, 1926.

Pathological Report

Placenta: Weight 520 gms. is full formed placenta with portions of membrane and cord. Placenta is 15 cm. by 12 cm. On fetal surface near the insertion of the cord, which is central, can be seen an area about the size of a silver dollar, of apparent mucoid degeneration. On the attached surface can be seen scattered areas of fibrosis. The placenta is made up of two halves and seems as though it were folded on itself. The cord is 38 cm. long. In addition to the placenta is a mass of tissue about 5 cm. square and 1-2 cm. thick. This may be part of broad ligament or thinned-out tube or ovary. A third mass consisting of a piece of omentum was connected to the broad ligament opposite the placental site.

Microscopic Examination

Placenta shows areas of necrosis alternating with normal areas. In the necrotic areas can be seen thrombosed blood vessels. Section through the mucoid area shows mucoid degeneration.

Second piece of tissue cannot be diagnosed histologically as to its being tube or ovary. It shows hyperplasia of smooth muscle fibre with formation of new blood vessels.

Omental tissue also shows new blood vessel formation.

Fetus

Male, weight 5 lbs. 14 oz. The right side of the head is flattened, eliminating the facial outline, coming to a sharp ridge extending from the forehead to the chin; the left eye is protruding; the mouth is distorted; both upper and lower extremities are deformed. Evidence of beginning maceration on trunk quite marked.

Decidual Cast

Specimen consists of red friable mass, oval shape, 8 cm. long by 4 cm. wide. Areas of hemorrhagic necrosis.

Points of Interest in This Case

1. Presence of chronic endocervicitis with periadnexitis causing tubal distortion, thus predisposing patient to ectopic pregnancy.
2. Threatened abortion (?) with faintness continuing for two weeks.
3. Continued good health until eight months of pregnancy.
4. Pre-eclamptic state.
5. Transverse position of fetus.
6. Type of pelvis.
7. Abdominal section for non-viable child.
8. Placental insertion.
9. Decidual cast.

POST PARTUM ECLAMPSIA WITH RECOVERY; DEATH FROM CEREBRAL HEMORRHAGE AND ENCEPHALOMA LACIA LIMITED TO THE LEFT FRONTAL LOBE—A CASE REPORT AND REVIEW OF THE LITERATURE

Josfph Binder

This lesion is sufficiently rare to warrant recording. Of interest at autopsy were relatively mild renal and hepatic lesions with evidence of healing of the latter.

Patient admitted 12 hours post partum, after many convulsions. Deep coma with a complete picture of eclampsia. Treatment included the exhibition of phlebotomy, magnesium sulphate, intravenous glucose, morphine, colonic irrigation and blood transfusion, with clearing of the eclamptic picture. Five days later patient became delirious, subsequently developed symptoms of cerebral irritation, and died on the 16th day, post partum, of bronchial pneumonia and pulmonary edema.

Autopsy showed congestion and edema of the brain, with encephalomalacia of the left frontal lobe; acute parenchymatous

degeneration of the myocardium; congestion and emphysema of the lungs, with bronchial pneumonia; chronic fibrous pleurisy; acute parenchymatous degeneration of the liver; acute parenchymatous degeneration of the kidneys; congestion of the spleen.

The clinical course and cerebral diagnostic signs are discussed, stressing the paucity of basis for accurate diagnosis of the cerebral lesion. The latter is believed to be due to the coalescing of multiple focal hemorrhages and necrotic areas.

The literature is carefully reviewed, noting that while various authors report the occurrence of cerebral hemorrhage in eclampsia, none specifically describe the precise type of lesion within the substance of the frontal lobe presented in this case.

The case illustrates the not uncommon occurrence of cerebral hemorrhage in eclamptic patients, the possibility of coalescence of many small contiguous foci into one large necrotic area and the fact that such a lesion occurring in the frontal lobe may give no characteristic diagnostic picture.

RECENT ADVANCES IN OBSTETRIC TECHNIC

PAUL TITUS, Pittsburgh

The members of this Section of The New York Academy of Medicine are so thoroughly familiar with the more important recent developments in obstetrics that one hesitates to bring before them such a subject as this. Indeed the fact is quickly brought out that many of these advances are being originated by members of this very Section.

Nevertheless, as attempt to present a number of them in review by means of illustrations rather than to undertake a critical and formal discussion of any one or two of them seemed to me a desirable departure from the usual technical paper.

These slides which are to be shown were prepared originally for the instruction of internes and nurses and therefore are somewhat elemental; but they have this merit that the drawings are originals and with only a few exceptions have never been published, while two of the motion pictures have never before been publicly shown.

Sterility is discussed in connection with the technic of tubal insufflation (Rubin's test) adn the injection of the uterus and tubes for x-ray visualization.

Certain original blood sugar curves in eclampsia which establish the convulsions as hypoglycemic reactions are shown (recently announced from our clinic) and are followed by slides and a motion picture reel depicting the development of intravenous injections of glucose to the present point of a new timing and heat-regulating apparatus. This treatment continues to be advanced for hyperemesis gravidarum and eclampsia, the glycemia curves being shown to indicate that it is no longer empiric. Methods of proctoclysis are also illustrated.

The administration of the Gwathmey rectal analgesia during labor is shown by motion pictures.

The proper technic of catheterization and of vaginal examination before and during labor, and so-called "hand-grips" on the advancing head during delivery are shown; and a brief discussion of episiotomy followed by perineorrhaphy is outlined by still pictures.

The lower uterine segment Cesarian section is presented by still and motion pictures.

Section of Laryngology and Rhinology, November 23, 1927

THE LOCATION OF THE FOCUS IN OPTIC NERVE DISTURBANCES FROM INFECTION

LEON E. WHITE
Boston

Some focus in the body is responsible for the optic nerve lesion arising from infection. Invasion is through the blood stream. The accessory sinuses supply but an insignificant number of the foci. Most of the foci are found in the teeth and tonsils. The sinuses, from their priority of investigation have occupied the attention of rhinologists too long, to the exclusion

of other more frequent seats of infection. Much can be learned from the general medical man on the best methods of investigating focal infection. Dental infections are easily overlooked. An expert odontologist is essential in a successful search for dental pathology. Devitalized teeth are a potential source of infection. Tonsils are a frequent cause of infection and should be removed when at all suspicious, if no other foci are found. Among the sinuses, the antrum is the most frequent seat of infection. Thickening of the antral mucosa without secretion may be a sufficient focus to warrant surgical intervention. Definite infection in the other sinuses should be eliminated, but this is of rare occurrence. Marked nasal blocking should be removed. Ventilation of the sphenoid as a therapeutic measure is rarely indicated but is still advocated when optic atrophy is imminent. The infection may be in remote regions of the body. The focus may be found in the appendix, gall bladder, prostate, fallopian tubes, genito-urinary or intestinal tracts. Systemic infection following influenza, scarlatina, etc., may be responsible for the optic nerve lesion. Local treatment is advocated in addition to the removal of the focus.

Normal vision was obtained in 63 per cent. of the cases undergoing operations, while 20 per cent. improved. In the remaining 17 per cent. which were chronic, further loss of vision was prevented. The ethmoids were opened but once, the sphenoid twice, and the antrum four times. Over 80 per cent. of the cases had infected teeth or tonsils, or both.

Section of Pediatrics, December 8, 1927

AURICULAR FIBRILLATION IN CHILDREN; ITS RELATION TO RHEUMATIC HEART DISEASE

SIDNEY P. SCHWARTZ
MORRIS M. WEISS

Auricular fibrillation in children is not as rare as a survey of the literature would seem to indicate. On the children's service at the Montefiore Hospital, 14 of a total of 71 children with

chronic rheumatic heart disease showed this type of irregularity at some time during their stay in the hospital. This was 5% of all cases showing auricular fibrillation from all causes seen at the hospital during the same period of time. Fibrillation occurred in six of the children at the height of an exacerbation of rheumatic fever.

Clinically, the cases may be divided into three groups; (a) the paroxysmal type, (b) the terminal type, (c) the chronic or permanent form. In this group studied, one case was of the paroxysmal type, four were terminal and the remaining nine were of the permanent form.

The discovery of auricular fibrillation in children is dependent on the care with which the heart rhythm is studied. The development of the arrhythmia seems to be associated with (a) active rheumatic carditis, (b) mitral stenosis, (c) the administration of digitalis in excessive amounts.

The differential diagnosis of this irregularity is (a) from a marked sinus arrhythmia which is very common in children (b) from the irregularity caused by auricular and ventricular premature beats, (c) from the dropped beat phenomena due to partial heart block, and (d) from the various tachycardias. The electrocardiogram is of invaluable aid in the diagnosis.

The paroxysmal and terminal type of auricular fibrillation do not admit of any rational therapy.

In cases with permanent auricular fibrillation the problem is to maintain the circulation, to prevent breathlessness, decompensation and the accumulation of fluid. This is done with rest and adequate digitalisation. The restriction of fluids and the judicious use of Salyrgen in 1 cc. doses repeated at 24 hours is of great help in preventing the accumulation of fluid.

Despite the use of these methods, the prognosis is very grave. Of our series of 14 children, six died within one week of the onset of fibrillation, three died within one year, one lived 20 months, another four years and another has reached the adult stage but he is a badly crippled cardiac.

UROBILINURIA IN CHILDREN WITH HEART DISEASE

M. H. EDELMAN

The author calls attention to the increased output of urobilin in the urine in the presence of certain diseases and alterations of body conditions. The report concerns itself with urobilinuria in heart disease of children.

Using the method of Elman and McMasters for urobilin estimations the uathor has designated quantities of less than 3 mgm. per 100 c.c. as normal, and quantities of 3 mgm. or more per 100 c.c. as pathological.

Attention is called to the fact that cardiac decompensation results in passive congestion of the liver, with consequent hepatic dysfunction and resultant urobilinuria. The writer estimates the severity of decompensation by the amount of urobilin in the urine at any given time in the course of the disease. He is also enabled by these estimations to gauge the amount of recovery at any period, and guide himself in the subsequent management of the affected child. This is substantiated by the increased urobilinuria and the simultaneously poor clinical state of the child which resulted from getting the cardiac child out of bed in the presence of a urobilinuria, even though the pulse, temperature and leukocyte count were normal. Urobilinuria also resulted from operative procedures instituted before a return to normal levels.

Five hundred and eighty-four cases obtained from children admitted to the wards and cardiac clinic of the pediatric outpatient department of the New York Post Graduate Hospital were divided into four groups as follows:

I. Control group—350 cases admitted for tonsils and adenoids.
II. Comparative group—32 non-cardiac hospital cases.
III. Ambulatory group—152 cases.
IV. Decompensated group—50 bed-ridden cardiac cases.

The greatest number of urobilinurias occurred in the decompensated group (88%), next in the ambulatory group (26%), and least in the control group (4%). Urobilin reactions occurred in 12 of 14 children in the decompensated group sub-

jected to operations such as tonsillectomy, transfusion, teeth extractions, myringotomy and bronchoscopy. In 50 cases of the control group, only one postoperative urobilinuria was observed and no reactions in five cases of the ambulatory group.

Coincidental complications such as gastric upsets and upper respiratory infections, in the course of heart disease also caused increasing urobilinuria.

The author stresses the importance of urobilin estimations in the management and care of the cardiac child.

Section of Neurology and Psychiatry, December 13, 1927

CASE 1—VEGETATIVE INSTABILITY AND ITS RESPONSE TO TREATMENT

GEORGE HYSLOP

The patient is a man 23 years of age whose past history is of no consequence. In 1924 he was troubled with eructations and frequent movements. These symptoms were relieved by diet and hygiene modifications. In 1925 he had nervous attacks in which he noticed shortness of breath and a constriction in the throat. He was given tincture of belladonna for this and shortly afterward had an attack of palpitation with rapid pulse and from then he worried about his heart. He next found that he began to feel fatigued upon standing long. He grew gradually unable to stand any physical exertion and had sudden attacks of vertigo and his heart constantly beat very rapidly. Upon physical exertion, palpitation and acceleration of his pulse was much greater. There was no loss of weight nor change in sleep. He usually felt good in the morning but by the end of the day was exhausted. Sexual desire decreased in frequency.

He enjoyed his work, had normal interests and recreation, and there was no abnormality of his sexual life.

He was under treatment by various physicians without re-

ceiving any benefit. However, iodine had decreased his pulse rate. In June, 1927, a basal metabolism of plus 65 was found. Absolute rest was enjoined.

The patient came to me about July 1st, 1927. Physical examination showed hypotrichosis and visceroptosis with a ptosed heart. The skin was moist, musculature had poor tone, and the skin stroking test showed a very marked prolonged red line. There were no signs of hyperthyroidism—tremor or eye signs. The pulse and blood pressure response to position and exercise were of interest and indicated poor vasomotor tone. The pulse at rest was 96, on standing was 130. Blood pressure at rest was 134/76 and on standing was 114/80. Hopping raised his pulse to 150 without elevating the blood pressure.

Ephedrin 3/4 gr. three times a day, a high fat diet, cod liver oil, and passive exercises with abdominal massage were prescribed.

The ephedrin slowed the pulse but caused a peculiar feeling at the chest and a pounding in the heart. The dose was reduced to 3/8 gr.

By the first of August the patient felt an increase in energy and was troubled with neither palpitation nor unduly rapid pulse. Examination, however, showed as yet no objective change.

By September 1st the digestive symptoms had disappeared, the patient was not troubled at all with circulation and he had become able to perform moderately strenuous exercises without ill effects. He had gained four pounds in weight and observed that this was his first improvement in over two years. The pulse and blood pressure responses now showed improvement. The pulse when recumbent was 96 and on standing was 120. Blood pressure when recumbent was 120/80, when standing was 112/80.

On November 16th the patient had no complaints except that at the end of a hard day he would feel slightly tired. There was an additional increase of six pounds in his weight. The heart was no longer ptosed. His muscles and skin vasomotor status were normal. The pulse and blood pressure responses were normal. The basal metabolism was reported as plus 20.

Comment

This patient is presented because of the unusually high basal metabolism not due to thyroid disease, and also because of the effects of ephedrin on his pulse rate.

The clinical picture might perhaps be termed Neurocirculatory Asthenia. This type of patient is often difficult to classify because of the frequency with which the physical complaints reflect an emotional cause, and often these patients are regarded by neuropsychiatrists as psychoneurotic. This patient's anxiety about his heart is a perfectly natural thing. In this instance there was no determinable psychogenic basis for the symptoms and the concern over the palpitation was alleviated somewhat by reassurance, but chiefly because the treatment instituted was successful in combating symptoms.

I do not wish to assert that the treatment prescribed here is the only possible successful treatment.

CASE 2—FOCAL EPILEPSY DUE TO CHRONIC SPHENOID SINUSITIS

GEORGE HYSLOP

The patient is a woman age 31. She has been troubled with progressive deafness in the right ear for about five years. Routine measures were unsuccessful in combating it. She was not subject to nose and throat infection.

On April 15th, 1927, while talking on the telephone she became suddenly unable to say the words that she wished to speak. There was at the same time a numbness and tingling in the right hand. For about twenty-four hours she was unable to speak at all but could understand what was said to her. At the end of forty-eight hours speech had improved. She came to me on April 18th, 1927, and in addition to the above symptoms said that on April 11th a head cold appeared and was accompanied by headache localized in the temples and over the vertex. There was also occasional blurring of vision.

Physical examination revealed a slight hesitancy in speech with anomia, a diminution of the right wink reflex and a ques-

tionable right plantar response. Fundi, visual fields and acuity of vision were normal. There was no fever.

In the next few days nasal discharge and sneezing appeared and her headache and speech defect improved. There was a slight but definite facial weakness by April 23rd.

Examination of the sinuses by Dr. Hirst on this date revealed surprisingly badly diseased sphenoid cells. Exenteration of the sphenoid and ethmoid cells was done the next day.

The necrosis of the sphenoid cells indicated that they were chronicly diseased. Local symptoms stopped soon after this operation, and the slight signs of focal brain disturbance have not recurred.

We have seen at Bellevue Hospital a few cases of temporal lobe symptomatology due to chronic sphenoid disease. The pathology in this patient is osteomyelitis of the sphenoid cells and extension of inflammation with the meningeal reaction over the tip and undersurface of the left temporal lobe. The patient was fortunate in not having developed either a brain abscess or a diffuse infective meningitis. The absence of retrobulbar neuritis and uncinate phenomena is perhaps worthy of comment. The localization in the temporal lobe is based upon the type of aphasia, the sensory aura in the right hand, and limitation of motor weakness to the facial muscles.

AN ANALYSIS OF 331 CASES OF HEAD INJURY IN CHILDREN WITH ESPECIAL REFERENCE TO END RESULTS

FENWICK BEEKMAN

From an analysis of 331 cases of head injury in children with a follow up report of 234 cases the following conclusions were drawn:

As a rule children stand severe injuries better than adults, as their resistance to damages to the body and their reparative powers are better. This is due to the fact that their bodies are young and they have no other pathological lesions to act as handicaps. This is apparently true of head injuries as well as others.

The fact that the dura is not strongly attached to the bones of the vault and that the vessels of the dura lie in comparatively shallow grooves in the inner surface of the skull, prevents laceration of the dura and brain in fractures of the vault, accounts for the rareness of extradural hemorrhages and allows diffuse separation of the dura from the bones in hemorrhage in the extradural space, the blood often escaping from this space through a fracture line and forming a hematoma under the scalp and thereby relieving the brain from compression.

Fractures of the vault may be frequently overlooked, as in many cases there are few, if any, symptoms, though hematomas of the scalp frequently overlie the fracture line.

The extent of a fracture line of the vault is of no prognostic value for the severity of the cerebral injury.

A simple depressed fracture of the skull is not in itself an indication for operative interference.

Compound depressed fractures are more serious than simple depressed fractures, not only because of the danger of infection that may follow, but because they more frequently produce lacerations of the dura and brain. In operating for compound depressed fracture, bone fragments should be replaced, if possible, so as not to leave a deficiency in the skull.

Fractures of the base of the skull in children may be overlooked for the lack of clinical symptoms.

Injury to the brain is more commonly found accompanying fracture of the base than fracture of the vault. This is especially the case in fractures of the middle fossa.

Symptoms resulting from brain injury clear up rapidly after the first forty-eight hours in the cases that recover; in those that die, death usually takes place in the first two days.

Symptoms of meningeal irritation without actual meningeal infection are often seen. Meningitis follows fractures of the anterior fossa more frequently than of any other part of the skull.

About 23 per cent of children suffering from head injuries have some type of sequelae, but few of them last. Those having symptoms due to permanent injuries are less than 5 per cent. As a rule it can be stated that sequelae are present in direct relation to the severity of the damage produced by the injury.

Fractures of the vault have a lower morbidity than those of the base, especially those of the middle fossa.

The symptoms complained of in the sequelae are more often of a subjective or emotional type than those of an objective type caused by a definite lesion. Headache is the commonest complaint. It was found quite as commonly in those with slight injury to the brain as in those with severe injury. It almost always clears up within a year after the accident.

Emotional instability is seen frequently. This varies anywhere from marked nervousness to a behaviorism which is a total change from the child's former character. These latter symptoms are found more frequently in those children who suffered from a more serious injury to the brain.

Conservative treatment appears to give the best results in head injuries in children. Operative procedures undertaken without definite indication are to be condemned.

PATHOLOGIC CONDITIONS COMPLICATING FRACTURES OF THE SKULL

B. M. VANCE

The pathologic lesions caused by fractures of the skull were classified most conveniently according to the cause of death. They were subdivided into four categories.

1. Deaths due to cerebral concussion or its sequelae, such as exhaustion and terminal pneumonia.

2. Deaths due to cerebral compression caused by:

a. Subdural hemorrhages, which in most instances were due to contre-coup lacerations of the brain, and to a less extent to direct lacerations of the brain. Rarely the hemorrhages resulted from the tearing of tributary veins to the superior longitudinal venous sinus, or from the tearing of old adhesions of the brain to the dura, or from laceration of the dura and the middle meningeal artery in such a way that the artery bled into the subdural space.

In some cases the laceration of the brain caused cerebral compression without any measurable amount of subdural hemorrhage. At times the brain seemed to increase in volume after

the fracture, and this phenomenon has been designated as oedema of the brain.

b. Epidural hemorrhages, which were due to lacerations of some blood vessel on the outside of the dura by the sharp edges of the fracture. The middle meningeal artery was torn in most instances, while a few cases were recorded of laceration of the lateral venous sinus and the anterior meningeal artery with the formation of an epidural clot.

3. Deaths due to suppurative meningitis and other forms of intracranial sepsis. The most common form was suppurative leptomeningitis, with a few examples of suppurative pachymeningitis interna and externa, brain abscesses, and septic thrombosis of the venous sinuses.

4. Deaths due to miscellaneous conditions. These included deaths from post-operative shock, a death from hemorrhage during a craniotomy because of a lacerated superior longitudinal sinus, and deaths from epileptiform convulsions associated with old adhesions of the brain to the dura. A number of cases died as the result of injuries elsewhere in the body. In other cases death was due to a natural cause or some other condition not associated with the fracture of the skull.

The fractures of the skull were classified so as to designate the anatomical form and location of the fracture, and to indicate in a general way the direction and the intensity of the force which caused the fracture. The subdivisions were:

1. Fractures of the Vault and Base.
    - A. Anterior Location.
        - a. Linear Fractures.
        - b. Composite Fractures.
    - B. Lateral Location.
        - a. Linear Fractures.
        - b. Composite Fractures.
    - C. Posterior Location.
        - a. Linear Fractures.
        - b. Composite Fractures.
2. Fractures of the Vault alone.
    - a. Linear Fractures.
    - b. Composite Fractures.
    - c. Depressed Fractures.

Lantern slides illustrating different fractures of the skull, and some of the intracranial complications which attend these injuries, were shown.

Section of Medicine, December 20, 1927

STUDIES IN BLOOD BILIRUBIN AND ITS VALUE AS A ROUTINE MEASURE, WITH A REPORT OF 500 CASES

JOSEPH S. DIAMOND

The multiplicity of the normal physiological functions of the liver renders it exceedingly hazardous to single out one special functional test as a diagnostic measure upon which we may base the recognition of abnormal liver function. It must be admitted, however, that bile pigment formation is one of the important functions of the liver and it has been found by experience that a high blood bilirubin is frequently associated with other functional disturbances.

The van den Bergh method of bilirubin estimation in the serum has the advantage over other methods in that it is uninfluenced by hemolysis and by the presence of luteins and lipochromes which are introduced with the vegetable foods, eggs and fats, substances which in themselves cause yellow discoloration. This method also affords a differentiation between the types of jaundice through the direct and indirect reactions.

The material herein reported is collected in part from Bellevue Hospital (third medical division), Sydenham Hospital, and ambulatory cases consisting of office patients.

Hepatic Toxemia

The most valuable information was obtained from a routine examination of the chronic ambulatory patients who presented a certain train of toxic symptoms simulating, in the main, the functional neuroses. There were 28 cases, chiefly of young adults, who complained of fatigability, general indisposition,

loss of ambition, nervousness, some digestive disturbances and in some foul breath and coated tongue. These gave definite evidence of disturbed liver function as indicated by the high blood bilirubin in the latent icteric stage, varying from 1.5 to 4.5 units (7.5 to 22.9 mgm. per 100 c.c.). The urobilogen in the urine was also found to be high. Other pathological conditions in the digestive tract or in the hemopoietic system were excluded. A history of a digestive upset at the onset of the attack was obtained in many. The acute indigestion and vomiting was induced by the eating of canned fish or meats. I believe that in this group we have a definite clinical entity of hepatic toxemia brought about by putrefactive protein foods. Without the aid of the modern clinical methods this condition would be unrecognized and untreated. Contrasting with these, there was a large group of the psychoneuroses, the vagotonias, gastric neuroses, anxiety states, etc., comprising in all 63 cases, in whom the blood bilirubin extimation was normal and could not be accounted for on the basis of hepatic toxemia.

The increased blood bilirubin must be regarded as an index of a more generalized liver disturbance including an interference with the intermediary protein metabolism such as the synthesis of the amino acids and the detoxication of amino bodies from the intestinal canal, which disturbance is probably responsible for the toxic symptoms.

The treatment has been chiefly eliminative and dietetic. The administration of calomel, salines, bile salts, as well as a diet rich in carbohydrates, and restrictions of animal proteins are indicated.

The importance of the early recognition of these hepatic disorders cannot be over-estimated for it is very likely possible that such states may be the precursors of chronic liver states such as the cirrhosis. Those treated early showed marked improvement, the blood bilirubin also returning to normal, while in the more chronic cases, both the symptoms, as well as the high serum bilirubin, tend to persist.

Migraine

In 38 cases of the typical hemicrania, as well as the abdominal migraine, the blood bilirubin was found to be high in 90% of the cases varying from 1.0 to 5.0 units (5 to 25 mgm.).

There appears to be some analogy between migraine and Widal's hemoclastic crisis and they may be regarded as an allergic manifestation resulting from the inability of the deficient liver cells to metabolize animal proteins.

Cholelithiasis and Cholecystitis

There were 56 cases of cholelithiasis and 98 cases of cholecystitis. In this large group, the estimation of the blood bilirubin was only of value during an acute biliary attack, when the bilirubin would rise from 2.5 to 4.5 units (12.5 to 22.5 mgm.). Thus the rise during the acute attack served to differentiate them from other forms of abdominal colic such as renal, gastric, pelvic; also from tabetic crises and coronary disease, in which conditions the blood bilirubin estimations remained low.

Catarrhal Jaundice

There were 18 cases of catarrhal jaundice with readings varying from 9.0 to 25.0 units (45 to 125 mgm.).

Frequent observations of the blood bilirubin curve in cases of jaundice will help us recognize the character of the disease, whether obstructive, requiring surgery, or a non-surgical toxic condition. In toxic icterus, however, the curve may rise suddenly during a remission of the disease. Also in the complete obstructive stage, as in carcinoma of the head of the pancreas, the bilirubin may drop after a while to a lower level and remain there stationary. The presence of duodenal bile is not conclusive in ruling out an obstruction of the common duct for in the late stages of carcinomatous growths, ulcerations may take place and allow bile to pass through into the duodenum. In the differential diagnosis between the obstructive and toxic jaundice, daily studies of the urobilogen in the urine will help us far more readily to differentiate these conditions. Its presence in the urine in appreciable amounts speaks invariably for catarrhal or toxic jaundice. In the obstructive types, the urobilogen in the urine is always absent.

Salvarsan Icterus

In the treatment with arsphenamine group, it is important to study the bilirubin contents of the blood before each treatment and note the effect on the liver. The arsenical should be discontinued if the bilirubin remains high. In one instance,

after two treatments with neoarsphenamine, a delayed reaction ensued with the developing of an intense jaundice, the bilirubin reaching 45.0 units (225 mgm.). The patient remained gravely ill for two months.

Cardiac Diseases

There were 16 cases of chronic endocardial disease and eight with coronary symptoms. The serum bilirubin was found to be increased only in the stage of decompensation, otherwise neither the endocardial lesions nor the coronary disease showed abnormal figures. As previously mentioned, the low figures in angina pectoris help to differentiate this condition from attacks of cholelithiasis when the symptoms are more obscure.

Blood Diseases

In four cases of pernicious anemia, the serum bilirubin was high varying from 2.1 to 3.0 units (10 to 15.5 mgm.). In the secondary anemias, the figures were always low. In fourteen cases of carinoma of the stomach, the figures were low varying from 0.4 to 0.5 units (2 to 2.5 mgm.). Ten cases of achylia gastrica also showed low figures. Two cases of purpura hemorrhagica and three leukemias were normal.

Negative Results

Thirty-four cases of duodenal ulcers and six gastric ulcers gave normal figures. Only five duodenals showed slight elevation due apparently to the presence of gall bladder adhesions. Thirty-five chronic appendicitis, and six ulcerative colitis showed normal bilirubin figures. Six hypothyroid, four hyperthyroid and two pituitary cases were all normal. Ten cases of pulmonary tuberculosis, five of bronchial asthma, all had normal figures. Fifteen cases of hypertension and nine of nephritis without hypertension were normal. Fourteen cases of diabetes were also normal.

Summary

1) The blood bilirubin estimation gives us most information in the latent state of icterus before evidence of clinical jaundice has appeared. In routine examination of chronic ambulatory patients with symptoms of digestive and nervous disturbances, a group of 28 cases have been found to give evidence of hepatic

derangement as indicated by the high blood bilirubin corresponding to the latent icteric stage. This group represents a definite clinical entity which should be designated as hepatic toxemia.

2) Thirty cases of cephalic and abdominal migraine were found to give high bilirubin readings in the latent stage pointing to hepatic dysfunction as a contributory factor in this disorder.

3) In the large group of cholelithiasis and cholecystitis, the test is only of value during the acute biliary attack when it serves to differentiate it from other forms of abdominal colic, including tabetic crises and angina pectoris.

4) Repeated blood studies in jaundice, noting the course of the bilirubin curve will help differentiate an obstructive from a cararrhal or toxic jaundice.

5) In the treatment with the arsphenamine group, it is important to watch the bilirubin curve in order to avoid arsenical liver toxemia.

6) Cardiac disease gave higher readings only during the stage of decompensation with engorgement of the liver.

7) High blood bilirubin readings are found in pernicious anemia distinguishing it from all forms of secondary anemia. Achylia gastrica, carcinoma of the stomach, the leukemias, purpura hemorrhagica, all give low figures.

8) Peptic ulcer, chronic appendicitis, intestinal stasis, ulcerative colitis, pulmonary tuberculosis, asthma, hypertension, nephritis, and endocrine disease, in the main, give normal readings.

In carcinoma of the liver, higher readings are only obtained when there is a direct interference with the flow of bile by compression of the intermediary or larger ducts.

9) The van den Bergh method has the advantage of being uninfluenced by carotenemia and hemolysis and also differentiates the type of jaundice by its different reactions.

In high bilirubin readings, the modified van den Bergh or the icterus index should be used.

Section of Obstetrics and Gynecology,
December 27, 1927

SOME STUDIES IN THE GROSS AND HISTOLOGICAL ANATOMY OF THE VERUMONTANUM, EJACULATORY DUCTS AND SEMINAL VESICLES

J. SIDNEY RITTER

At the suggestion of Doctor Joseph F. McCarthy and under his supervision, plus the kind aid and co-operation of Doctor Paul Kemperer, this investigation was undertaken with an attempt to determine the normal anatomical and histological study of the verumontanum with especial reference to the ejaculatory ducts.

After carefully investigating the literature on this subject due to the divergence of opinions as to the precise course taken of the ejaculatory ducts through the verumontanum and prostate, and due to the fact that the true structure of the verumontanum is somewhat confused, autopsy specimens were obtained with the hope of obtaining a more definite understanding of these parts. All gross anatomical conclusions were made after carefully studying 80 specimens and all histological conclusions were arrived at after studying microscopic sections of 20 specimens, sectioned from above down, side to side and before back so as to see the verumontanum and its glandular structure plus the ejaculatory ducts in their various locations. This necessitated the study of more than 1000 microscopic sections. Our conclusions follow.

The verumontanum is a small elevation in the posterior urethra and is approximately 9 mm. long, 3 mm. wide and extends 3 mm. above the urethral floor (fig. 1). This structure can plainly be seen through any instrument that will permit inspection of the posterior urethra.

The orifices of the utricle and ejaculatory ducts open on the anterior incline of the verumontanum. The utricle opens in the mid-line. The orifices of the ejaculatory ducts in 80 per cent. of the specimens examined opened antero-lateral to the utricular orifice. In 5 per cent. lateral to the utricle, while

in 15 per cent. they opened postero-lateral to this orifice. None was seen to open into the cavity or on the margins of the utricle, or within 1 mm. of this margin. The orifices were open; no valve-like formation or protecting tissue was noted in any of our specimens.

Ejaculatory Ducts

The average length of the ejaculatory ducts is 15 mm., the shortest 9 mm. and the longest 22 mm. In none of our specimens did the ducts extend beyond the prostate gland (fig. 2). The average circumference of the ejaculatory duct at its orifice is 1.9 mm. (fig. 3). As it extends backward through the verumontanum and prostate gland the lumen gradually becomes larger until its division into the duct of the seminal vesicle and ampulla of the vas deferens, at which point the average circumference is 4.5 mm. (fig. 4). At the orifice the lumen is slit-like in shape; as it progresses through the prostate it becomes elliptical, the greater diameter being vertical, and at its termination its lumen is circular (fig. 5).

The course of the ejaculatory ducts is as follows: They take a very sharp dip through the verumontanum from the urethral floor. For the first millimeter and a half the ducts diverge and then converge for the next millimeter or two, until there is a thin septum of fibrous and elastic tissue separating them, which wall is easily penetrated though soft, flexible instruments be used. They then run parallel to each other and usually at a less acute angle through the prostate gland, terminating at the termination of or within the substance of this gland. At their division into the ampulla of the vas deferens and the duct of the seminal vesicles they are furthest away from the urethral floor.

The lumen of the duct of the seminal vesicle is 4.5 mm. whereas the lumen of the ampulla of the vas deferens has a circumference of 3.1 mm.; noting the circumference of the ejaculatory duct at its termination, these measurements may be somewhat confusing. The similarity in size of the lumen of the ejaculatory duct with that of the duct of the seminal vesicle is accounted for by the fact that the ampulla opens on the mesial superior aspect of the ejaculatory duct (fig. 6). Rolnick [19]

confirms these findings in his recent article.

This is contrary to Crouse [17] who likens this set of ducts to the biliary passages in which as you all know the common duct is a direct continuation of the hepatic ducts. The cystic duct is a tributary and has numerous valve-like rugae protecting its lumen. Were this analogy correct the duct of the seminal vesicle would be the tributary duct and the ampulla of the vas deferens the direct continuation of the ejaculatory duct. This is contrary to our findings as stated above. Again in our specimens we find that the ampulla of the vas has numerous rugae protecting its lumen and that in each instance when a catheter was introduced by way of the ejaculatory duct orifice it would enter the duct of the seminal vesicle and be arrested by the first sacculation of the vesicle. In none of our specimens were we able to enter the ampulla of the vas deferens by way of the ejaculatory duct. Retrograde catherterization was attempted with similar results, whereas by puncturing the lowermost mesial sacculation of the seminal vesicle we were able to enter the ejaculatory duct in each specimen.

Prior to disturbing the specimens solutions were injected through the vas; our results coincide with Belfield's opinion and Lespenasse's [18] findings on cadavaric specimens, in that the seminal vesicle was distended prior to the appearance of any of the solution at the orifice of the ejaculatory duct (fig. 7). However, our findings disagree with Belfield in that since the specimens were postmortal, this phenomena could not be explained by sphincteric action. The average capacity of the seminal vesicles was found to be 3.6 c. c., the greatest 7 c. c. and the smallest 2 c. c. (fig. 8).

In numerous specimens the ejaculatory ducts were catheterized and fluid injected. Here too the seminal vesicles were distended prior to the solution entering the ampulla of the vas deferens (fig. 9). This is contrary to Young who, in describing an x-ray plate in which the vas had been injected, states that probably owing to the fact that a long cannula, which entered the vas deferens on each side, was used, the vesicles were not injected; to inject the vesicles the cannula is introduced a shorter distance. This would lead one to believe that the ampulla of the vas is a direct continuation of the ejaculatory

ducts. This is contrary to our findings (fig. 10). Embryologically the seminal vesicles are a side pouching of the Wolffian duct. In the adult male, however, the anatomical study definitely shows the vas opening into the duct of the seminal vesicles at a 30 degree or greater angle to form the ejaculatory duct and that this formation takes place within the prostate gland.

Therefore in order to catheterize the ejaculatory duct it is necessary to engage the tip of the catheter in the orifice and then deflect the catheter to an angle of approximately 45 degrees. The lateral curvature of the ejaculatory duct for its first 3 mm., as described above, may necessitate a slight sideways tilting of the instrument to avoid penetrating the septum between the ducts.

Histological Conclusions

The verumontanum has a thin layer of smooth muscle supporting its epithelium which is a direct extension of the urethral epithelium. This layer of smooth muscle extends anteriorly, posteriorly and laterally to merge with the smooth muscle of the urethra. The verumontanum has a supporting structure of fibrous tissue intermingled with smooth muscle which is similar to that of the prostate gland (fig. 11). It contains a moderate amount of elastic tissue which surrounds the various ducts and tubules of this structure, gradually fading into the interstitial tissue surrounding the acini of the prostate gland (fig. 12).

The utricle occupies the central portion of the verumontanum and varies in size and shape, usually appearing in the form of a sacculation or a large duct running parallel with the urethral floor (figs. 13 and 14). It is approximately 6 mm. long (fig. 15). There are prostatic tubules seen opening into the floor and distal extremity of this cavity. Corpora amalycea were seen within these tubules and also within the lumen of the utricle (fig. 16).

There are numerous tubules and prostatic ducts surrounding the utricle. The ejaculatory ducts at their beginning are closely associated with this structure. No definite layer of muscle can be seen surrounding the utricle. Wavy strands of elastic tissue are seen in close approximation to it.

The ejaculatory duct opens as stated in the majority of cases antero-lateral to the orifice; no muscle was seen nor protecting tissue at the orifice so that we may definitely state that the ejaculatory duct orifice is not protected by either flap of tissue or sphincter. In their passage through the verumontanum and prostate occasionally prostatic ducts were seen opening into them (fig. 17).

No definite layer of muscle tissue either circular or longitudinal could be demonstrated associated with these ducts (fig. 18); however, a fair amount of elastic tissue was seen surrounding them, up to their termination where on the lateral wall of the duct of the seminal vesicle this elastic tissue continued. On the mesial aspect where the ampulla of the vas joins this duct the elastic tissue was absent and replaced by definite muscle tissue (figs. 19, 20 and 21). Surrounding the ejaculatory duct, a distinct group of venous sinuses was noted which if you could stretch your imagination would lead one to believe that the ejaculatory duct had a corpus cavernosus of its own (fig. 22).

There is a large artery situated between the ducts and posterior to them. It is somewhat larger than one would expect and probably sends off branches to the prostate and urethra. There was a normal amount of nerve tissue present the distribution being similar to that found in other tissues of the body.

The epithelial lining of the ejaculatory duct is of a transitional type gradually becoming columnar as it reaches the prostate gland. There are brown pigment granules within the columnar cells of specimens obtained from subjects of the second decade or later.

In conclusion we feel that an explanation of the physiological fact that the seminal vesicles are distended when solutions are injected either through the vas deferens or ejaculatory duct is of utmost interest and importance.

1—The seminal vesicles are distended when fluids are injected through the vas deferens because:

a—The normal resistance of the walls of the ejaculatory ducts the lumina of which become gradually smaller as they approach the urethral floor, causes the liquids to flow toward the seminal vesicles.

b—A large muscular organ (the prostate) surrounds the ejaculatory ducts and offers resistance to their distention.

c—The ejaculatory duct has no musculature of its own to overcome the resistance of the prostate musculature.

d—The fact that the lateral wall of the duct of the seminal vesicle contains elastic tissue which is less resistant to distention than muscle tissue.

2—The seminal vesicles are distented when solutions are injected by way of the ejaculatory duct prior to any solution appearing in the vas deferens because:

a—The duct of the seminal vesicle is a direct continuation of the ejaculatory duct.

b—The lateral wall of the duct of the seminal vesicle contains elastic tissue and is therefore less resistant and more readily distended than the ampulla of the vas deferens.

c—The lumen of the ampulla of the vas is surrounded by thick muscle walls and its orifice opens superomesially into the ejaculatory duct.

d—The lumen of the ampulla contains several valve-like protecting folds within its lumen which tend to obstruct the entrance of any fluid into the vas deferens.

References

[1] Belfield, W. T.: Vasotomy-radiography of the seminal duct. From Reprint Jour. Amer. Med. Assoc., November 22, 1913.

[2] Young, H. H., and Waters, C. A.: X-ray studies of the seminal vesicle and vasa deferentia after urethroscopic injection of the ejaculatory ducts with thorium. Bull. Johns Hopkins Hosp., 1920, XXI, 12-13.

[3] Gray's Anatomy.

[4] White and Martin: Genito-Urinary and Venereal Diseases, p. 619.

[5] Bohm, A. A., and Von Davidoff: A Text Book of Histology Including Microscopical Technique, p. 330.

[6] Dunham, E. K.: Normal Histology, p. 224.

[7] Ferguson, J. S.: Normal Histology and Microscopical Anatomy.

[8] Bailey, F. R.: Text Book of Histology.

[9] Frisch and Zuckerkandl: Handbuch der Urologic, 1903.

[10] Reaves, J. U.: The pathological bladder and posterior urethra, a cystourethroscopic study. Urol. and Cutan. Rev., St. Louis, 1920, XXIV, 327, 332.

[11] Hawkins, J. A.: Some observations on Inflammation of the Verumontanum. Reprint New York Med. Jour., August 14, 1909.

[12] Hawkins, J. H.: Present status of deep verumontanum in deep urethral diseases. Reprint New York Med. Jour., October 10, 1914.

[13] Smith, E. O.: The verumontanum. Trans. Amer. Urol. Assoc., 1917, XI.

[14] Henry C. P.: Short study of the verumontanum. Urol. and Cutan. Rev., November, 1919.
[15] Ruggles, E. W.: Diseases of the verumontanum. New York Med. Jour., 1911.
[16] Lowsley, O. S.: The development of the human prostate gland with reference to the development of other structures in the neck of the urinary bladder. Amer. Jour. Anat., XIII.
[17] Crouse, H.: An improved technique in dealing with the seminal vesicles.
[18] Lespenasse, V. D.: Local treatment from seminal vesiculitis with a description of some new methods. Jour. Urol., 1920.
[19] Rolnick, H. C.: Catheterization of the ejaculatory ducts. Surg. Gynecol. and Obstet., May 26, 1926.

BIOCHEMICAL STUDIES OF THE PROSTATO-SEMINAL SECRETIONS

JOHN A. KILLIAN, Ph.D.
C. TRAVERS STEPITA

Three years ago, the work of endeavoring to devise a feasible method for the instrumentation of the ejaculatory ducts and seminal vesicles was undertaken, with a view to a rational therapy, and for diagnostic purposes, at which time considerable mechanical difficulties were encountered.

A more detailed knowledge of the anatomical relations of the ejaculatory ducts to adjacent structure was required to obviate these difficulties. The lack of such knowledge stimulated the intensive histo-anatomical study of the ejaculatory ducts and seminal vesicle by McCarthy, Ritter and Klemperer.

It was then that the ultimate bio-chemical studies of the prostato-vesicular sections were undertaken to the end that before inaugurating rational therapy of these structures, we would have basic scientific standards, as a point of departure. There also arose the necessity of determining the composition of the normal prostato-vesicular secretions as a standard with which the chemical change in pathological fluids might be compared.

A review of the literature revealed scattered and, at times contradictory, data, but no comprehensive bio-chemical studies of these fluids. To obtain information of practical value concerning the principal components of the prostato-vesicular secretions, fairly complete analyses have been made of the secretions obtained from normal men.

The object of this communication is to present the results of our studies in a preliminary form.

The procedure adopted in obtaining the prostato-vesicular secretions was as follows:

After the bladder had been completely emptied, the anterior urethra was irrigated with warm boric acid solution. A No. 14 F. soft rubber catheter was passed under aseptic conditions and six ounces of warm boric acid solution were retrojected. After withdrawal of the catheter, the subject was massaged by the right index finger of the operator, beginning with the vesicles and finishing with the prostate. During the massage, the secretion was collected in a dry sterile test tube. Specimens from several individuals were combined to afford enough material for the analysis.

The results of these bio-chemical studies are, we believe, of great interest. The total solids varied from 4.8 to 9.9 per cent., with an average of 8.0 per cent.; these secretions contain an unusually high concentration of calcium; the phosphorus is markedly increased over that of the blood serum. Randall and Muschat have reported an average pH of 7.24 for normal prostatic secretion. According to this finding, the prostatic secretion is less alkaline than blood plasma. It is difficult to understand how these secretions with that degree of alkalinity can carry in solution much greater quantities of calcium and phosphate than the blood serum. It appears possible that the very efficient buffering mechanism of the semen may depend upon the high content of calcium and phosphates.

The non-protein nitrogen of these secretions averaged 174 mgm. per 100 c. c.

Variations in urea nitrogen were from 29 to 130 mgm. per 100 c. c.

The amino-nitrogen was in unusually high concentration, about three times the upper normal level of fasting blood. It is believed that the amino-nitrogen and hydroliphale phosphorus may be in the form of spermine.

The relatively high figures for creatinine are of interest, the concentration being about twice that of whole blood.

These secretions also show the presence of a glycogen splitting enzyme, a diastose. The diastatic activity is very similar to that of blood.

In fresh specimens of semen obtained from 50 human subjects the sugar concentration varied from 67 to 658 mgm. per 1 c. c. In 80 per cent. of the specimens the sugar content exceeded 300 mgm. per 100 c. c. The Shaffer-Hartmann method was utilized in these analyses. Fresh specimens of semen collected and maintained under aseptic conditions and containing motile spermatozoa showed a decrease in sugar when incubated at 38 degrees C. for 6, 9, 12 and 24 hours. The final concentration of sugar after 24 hours incubation amounted to from 10 to 25 per cent. of the original concentration. No glycolysis was noted in specimens placed under water bath at 100 degrees C. for five minutes before incubation. The lactic acid of fresh semen varied from 95 to 137 mgm. per 100 c. c., determined by the Brehme and Brahdy modification of the Clausen method. During incubation, an increase in lactic acid was noted coincident with the fall in sugar. Lactic acid, however, is not the end product of glycolysis, since in some specimens, the initial increase in lactic acid was followed by a subsequent fall. With Cullen's method the average pH of fresh semen was found to be 7.6. During the first 6 hours of glycolysis the pH rose to 8.0 and subsequently it fell to an acid reaction.

PROCEEDINGS OF ACADEMY MEETINGS, DECEMBER

Stated Meetings

Thursday Evening, December 1, at 8:30 o'clock

ORDER

I. Executive Session
Election of Officers

II. Symposium: Malaria in Syphilis
a. The malaria treatment of general paresis (observations based on four and one-half years' experience). George H. Kirby, Director, Psychiatric Institute, Henry A. Bunker, Assistant Director, Psychiatric Institute (by invitation).
b. Clinical results following malarial therapy in paresis. Charles W. Stone, Associate Professor of Nervous Diseases, Western Reserve University, Cleveland (by invitation).
c. Experiences with malarial inoculation in syphilis. Jay F. Schamberg, Professor of Dermatology and Syphilology, Graduate School of Medicine, University of Pennsylvania, Philadelphia (by invitation).

Thursday Evening, December 15, at 8:30 o'clock

ORDER

I. Executive Session

II. Papers of the Evening
a. Experimental investigation of the tumor question. James B. Murphy, Rockefeller Institute for Medical Research.
b. The treatment of lobar pneumonia with refined sera. (From the Littauer Pneumonia Fund, New York University; Harlem Hospital; Research Laboratory, Department of Health).
1. The control. Jesse G. M. Bullowa.
2. Bacteremia in relation to prognosis and treatment. Milton B. Rosenblüth.

3. Dosage. William H. Park, Miss Georgia Cooper (by invitation).
Discussion. Samuel A. Brown, Emanuel Libman, William R. Williams.

Section Meetings

Section of Surgery

Friday Evening, December 2, at 8:30 o'clock

I. Reading of the Minutes

II. Presentation of Cases

a. 1. Gangrenous intussusception with resection of four inches of ileum in a child four months of age.
2. Chronic intussusception. Reduction.
3. Transperitoneal nephrectomy in a child of four years with congenital heart.
4. Suppurative arthritis of the shoulder in infancy; 2 cases, Edward J. Donovan.

b. Obscure cholelithiasis: Roentgenogram after injection of the sinus, gall-bladder and gall-ducts with sodium iodid, Victor C. Pedersen.

c. 1. Gastric ulcer, contact duodenal ulcer; excision of gastric ulcer, cautery puncture duodenal ulcer, posterior gastro-enterostomy. Cured 2½ years.
2. Gastric ulcer excision gastro-enterostomy. Cured 6 years.
3. Aberrant pancreatic tissue simulating duodenal ulcer.
4. Two cases of intussusception in infants showing pre-operative knee-elbow posture, Henry W. Cave.

III. Paper of the Evening

The results of resection for gastric and duodenal ulcer, A. A. Berg.

IV. Discussion of the Paper

George Woolsey, John A. Douglas, Fordyce B. St. John.

Section of Dermatology and Syphilis

Tuesday Evening, December 6, at 8:00 o'clock

ORDER

I. Presentation of Patients

a. Cases from the New York University and Bellevue, Howard Fox, E. R. Maloney, W. J. Highman, C. J. Halperin, P. E. Bechet, Rudolph Boenke, Leo Spiegel, F. C. Combes, H. C. Saunders, Herman Sharlit, J. P. Thornley, Louis Tulipan, David Bloom, E. F. Traub.
b. Miscellaneous cases.
c. Demonstration of cistern puncture (cisterna magna), Leo Spiegel.

II. Discussion

III. Executive Session

Note: Examination of cases is limited to members and their invited guests.

Section of Pediatrics

Thursday Evening, December 8, at 8:30 o'clock

ORDER

I. Reading of the Minutes

II. Papers of the Evening

a. Auricular fibrillation in children; its relationship to rheumatic heart disease, Sidney P. Schwartz (by invitation); Morris M. Weiss (by invitation).
Discussed by Cary Eggleston.
b. Urobilinuria in children with heart disease (preliminary report).
Discussed by M. H. Edelman, John H. Killian, Ph.D. (by invitation); Walden E. Muns (by invitation); Roger H. Dennett.

Section of Otology

Friday Evening, December 9, at 8:30 o'clock

ORDER

I. Reading of the Minutes

II. Presentation of Cases

a. Lateral sinus thrombosis and cavernous sinus thrombosis complicating a radical mastoid operation.
b. Suppurative labyrinthitis and meningitis complicating simple mastoid operation, H. Clifton Luke.

III. Paper of the Evening

Some mooted questions in sound conduction and perception, Francis P. Emerson, Boston (by invitation).

IV. Discussion by
Edmund Prince Fowler (by invitation); R. L. Wegel, Bell Telephone Laboratories (by invitation).

V. Executive Session

Section of Neurology and Psychiatry
Tuesday Evening, December 13, at 8:30 o'clock

ORDER

I. Reading of the Minutes

II. Case Presentation
a. A case of vegetative irritability and its response to treatment.
b. A case of chronic sphenoiditis producing focal epilepsy, George H. Hyslop.

III. Papers of the Evening
a. An analysis of 331 cases of head injury in children with especial reference to end results, Fenwick Beekman.
Discussion, Carl G. Burdick, M. Osnato, Thomas K. Davis.
b. Pathological conditions complicating fractures of the skull, Benjamin M. Vance (by invitation).
Discussion, Charles Norris, John A. McCreery, E. D. Friedman.

IV. Executive Session

Section of Orthopedic Surgery
Friday Evening, December 16, at 8:30 o'clock

ORDER

I. Reading of the Minutes

II. Presentation of Cases
a. Giant cell sarcoma of the tibia.
b. Case of dyschondroplasia, Mather Cleveland.
c. Fracture of the carpal scaphoid.
d. Fracture of the carpal scaphoid complicated by dislocation of the semilunar, Paul C. Colonna.
e. Cases illustrating the first paper of the evening, Irvin Balensweig.
f. Cases illustrating the second paper of the evening, Joseph Buchman (by invitation).

III. Papers of the Evening
  a. Injuries of the carpal bones, Irvin Balensweig.
  b. Traumatic osteoporosis of the carpal bones, Joseph Buchman (by invitation).

IV. Discussion Opened by
Edward R. Easton.

Section of Historical and Cultural Medicine

Friday Evening, December 16, at 8:30 o'clock

ORDER

I. Papers of the Evening
  a. Napoleon. His last illness and postmortem examination. Exhibition of books, autograph letters, medals, etc., relating to St. Helena, Paul E. Bechet.
  b. The influence of habit in the evolution of man and of the great apes. Lantern slides, Henry Fairfield Osborn, American Museum of Natural History (by invitation).

II. Discussion
Raymond L. Ditmars, Zoological Park (by invitation); W. Reid Blair, Zoological Park (by invitation); Frederick Tilney, William K. Gregory, American Museum of Natural History (by invitation); Dudley J. Morton, Yale University (by invitation).

Section of Ophthalmology

Monday Evening, December 19, at 8:30 o'clock

ORDER

I. Reading of the Minutes

II. Presentation of Cases
  a. Report of a case of sarcoma of the ciliary body, with specimens and subsequent history, Arnold Knapp.
  b. Optic nerve tumor, report of a case, Herbert W. Wootton.
  c. A case of chloroma with ocular lesions, Martin Cohen.
  d. Blue sclerotics-fragilitas syndrome—report of occurrence in mother and infant, Samuel P. Oast (by invitation).

e. Recurrent vitreous hemorrhage and its relation to calcium content of the blood—report of a case and presentation of a patient, Thomas H. Curtin.
f. A case of detachment of the retina, with extensive tear exposing a large area of naked choroid, Henry Minsky (by invitation).
g. Demonstration of an attachment to the slit-lamp to produce optical sections in the eye media, Mark J. Schoenberg.

III. Paper of the Evening
Experiences with ephedrin, Mark J. Schoenberg.

IV. Executive Session

Section of Medicine
Tuesday Evening, December 20, at 8:30 o'clock

ORDER

I. Papers of the Evening
a. Studies in blood bilirubin and its value as a routine measure with a report of 500 cases, Joseph S. Diamond.
b. Importance of conservative treatment in chronic ulcerative colitis, Burrill B. Crohn.
c. Some observations on chronic ulcerative colitis, Jerome M. Lynch (by invitation).

II. Discussion
Howard F. Shattuck, John C. Torrey (by invitation); Douglas Palmer (by invitation).

Section of Genito-Urinary Surgery
Wednesday Evening, December 21, at 8:30 o'clock

ORDER

I. Presentation of Cases
From the service of Mount Sinai Hospital
1. Uremia due to ureteral obstruction—nephrotomy, Paul W. Aschner.
2. Ectopic supernumerary ureter opening in vagina, partial resection of kidney and ureter, Abraham Hyman.
3. Bilateral double pelves and double ureters, right nephrectomy and left heminephrectomy, Abraham Hyman.

4. Solitary kidney with artificial ureter, Abraham Hyman.
5. Stone in hypoplastic malplaced kidney, Edwin Beer.
6. Infected left calculous hydronephrosis in right iliac fossa, Edwin Beer.
7. Papillary carcinoma of bladder—resection (2 cases) cured seven and five years, Paul W. Aschner.
8. Carcinoma of bladder—secondary to artificial cystitis calculous pyelonephrosis; Nephrectomy; Total cystectomy and partial ureterectomy, and partial prostatectomy, Edwin Beer.
9. Breast development after prostatectomy, Lewis T. Mann.
10. X-ray signs of perinephritic abscess, Edwin Beer.
11. Pyelogram of kidney following pressure of perinephritic abscess, Abraham Hyman.
12. The nitrite reaction as an indicator of urinary infection, Lewis T. Mann, Abraham Hyman.
13. Effect of nephrotomy—incision and suture—on renal function, Edwin Beer.
14. Variation and peculiarities in x-ray shadows, Edwin Beer.
15. Massive hematuria complicating pyelonephritis, Abraham Hyman.
16. Frequency of reflux in cystography, Paul W. Aschner.
17. Bilateral renal calculi—solitary large stone in one side and 200 to 300 facetted stones in other kidney. Bilateral pyelolithotomy under spinal anesthesia. Points in technique of operative removal of kidney stones, Edwin Beer.

Section of Obstetrics and Gynecology
Tuesday Evening, December 27, at 8:30 o'clock

ORDER

I. Reading of the Minutes

II. Papers of the Evening

A symposium on sterility.

a. Factors in female sterility, Isidor C. Rubin.
Discussion by Robert L. Dickinson.

b. Instrumentation of ejaculatory ducts and seminal vesicles, Joseph F. McCarthy.
c. Some studies in the growths and histological anatomy of the verumontanum, ejaculatory ducts and seminal vesicles, J. Sydney Ritter.
d. Bio-chemical studies of the prostato-seminal secretions, John A. Killian, Ph.D. (by invitation), Cornelius T. Stepita.
Discussion by Clarence G. Bandler, Stanley R. Woodruff.

III. General Discussion
IV. Executive Session

Section of Laryngology and Rhinology
Wednesday Evening, December 28, at 8:30 o'clock

ORDER

I. Reading of the Minutes
II. Presentation of Cases
a. Suction apparatus with specimen collector.
b. A case of dysphonia stastica, Leopold I. Glushak.
Report of a case of pericardo-esophageal fistula following foreign body, Charles J. Imperatori.
III. Papers of the Evening
a. Vincent's infection of the mouth, Raymonde H. Albray, D.D.S. (by invitation).
b. Bacteriology of Vincent's infection of the nose and throat, J. Creighton Barker.
c. Systemic manifestations of Vincent's infection, Charles Frederick Tenney.
Discussion opened by James G. Dwyer.

BOOK REVIEW

A TEXT-BOOK OF MEDICINE

By American Authors
Edited by RUSSELL L. CECIL
Associate Editor, FOSTER KENNEDY

One approaches the review of a textbook on medicine with the greatest temerity. The size alone of such a work makes it difficult to know it well enough to criticize it; one's judgment must usually, as in the present case, be made by judicious sampling.

The plan of the editors was that the book should be written by American authors, each an authority in the field he was to cover. They had then before them the following problem: the division of subjects into proper groups, the obtaining of competent men to do the work, and the editing of the articles, as presented, so that the book should have a uniformity of context and proper emphasis, and should emerge as a textbook rather than as a series of unrelated articles.

The division into subjects and their arrangement is for the most part excellent. Repetition has usually been avoided. The topics are first considered under the head of etiology and then later in structural groups. It is interesting to compare the various etiologies in the table of contents with the table of contents of Austin Flint's textbook of sixty-odd years ago and note the tremendous advance in our knowledge of the causes of disease. This double classification makes it difficult to avoid repetition and to secure proper emphasis. One feared that when the article on etiology was written by one person and that on structure by another, there might be serious interferences. The editors have, however, handled this problem successfully.

A few symptoms still crawl into the text as major headings. No doubt the time will come when it will be no more necessary in a general textbook to have a separate article on jaundice, or asthma, or angina pectoris, than it is now to have articles on fever or cough or diarrhœa.

In the choice of contributors the editors have been singularly fortunate. Although authors have been drawn from the departments of medicine of nearly every medical school in the United States and Canada, in nearly every case, the authority rather

than a popular writer has been chosen. One does wonder why Homer Smith did not write the article on Trench Fever when he was the obvious choice, and why such an important consideration as Symptomatic Disorders of the Heart should have been assigned to just the physician it was. But these are minor slips, and the article on Trench Fever is excellent.

In general the articles are clearly written, are just in their proportion, and are up-to-date. Naturally there is a certain uneveness as to quality, certain sections, as well as certain articles, being much stronger than others. I think the section on Infectious Diseases is particularly good.

Since Sir William Osler's death, many have felt that some sections of his book were not being kept as modern as a students' textbook should be. I believe that for new facts this new book is better. No book written by one hundred and twenty authors could be a literary masterpiece, nor could this book be expected to have the charm of Osler's style. It will probably never stimulate anyone's imagination to the point of establishing great institutes for the study of disease. Nevertheless I believe that Dr. Cecil and Dr. Kennedy have made a real contribution to medical education; the book will be of great value to the undergraduate medical student, who is getting his bird's eye view, and to the average busy general practitioner, who should, of course, go to the original sources for himself, but who, being an average man, so seldom does.

JOHN WYCKOFF.

REPORT ON THE OFFICE OF THE CHIEF MEDICAL EXAMINER OF THE CITY OF NEW YORK BY COMMITTEE ON PUBLIC HEALTH RELATIONS

The Chief Medical Examiner of this city began his work on January 1, 1918. By a legislative act, the coroners, who were county officers, were abolished and their work in all of the counties of New York City was turned over to the Chief Medical Examiner.

The office was created, first, to do away with certain inherent deficiencies that existed in the coroner system, and, secondly, to organize a forensic medicine department of the city on a modern scientific basis. It is not generally realized that from 15 to 20 per cent of all deaths occurring in the Greater City come within the jurisdiction of the Chief Medical Examiner. In the year 1926, there were in New York City 76,182 deaths, and of these 13,610 were Medical Examiner's cases. About two thousand autopsies were performed in the Manhattan Mortuary alone.

In spite of the handicaps of insufficient equipment and paucity of personnel, the work of the Chief Medical Examiner, under the direction of Dr. Charles Norris, has fully justified the hopes of those who helped to secure the legislation abolishing the coroner system.

At the close of the ten years of existence of the office, it is desirable to emphasize the needs of the Department, in order to make possible an even greater efficiency of this important public office. The primary need is provision for an adequate chemical laboratory staff. Immediate toxicological examinations are necessary not only in many cases of homicide, but in case of deaths from accidents as well as sudden deaths. At the present time, by courtesy of the Board of Trustees of Bellevue Hospital, the Chief Medical Examiner's office is using the chemical laboratory at that hospital, and the work is in charge of a competent pathological chemist, whose salary is paid by Bellevue Hospital, and who gives but part-time service to the Chief Medical Examiner. There is need of a full-time assistant pathological chemist, first because of the amount of work to be per-

formed and secondly because of the practical experience necessary to carry out satisfactorily the exacting routine.

There is need of a morgue in every borough of the city. At the present time there are only three municipal morgues—one in Manhattan at Bellevue Hospital, one in Brooklyn at Kings County Hospital and one in the Bronx at Fordham Hospital.

The Department should be provided with cars, in view of the many calls upon the medical examiners and the long distances they must often travel, particularly in the outlying boroughs.

The salaries of the medical staff need readjustments, in view of the important and responsible duties devolving upon them, and, in view of the fact that the ordinary civil service hours do not apply to them, as they are on call at all times. The present medical personnel consists of:

The Chief Medical Examiner who receives a salary of $7,500 per annum; two Deputy Chief Medical Examiners, each receiving $4,500 per annum; 14 Assistant Medical Examiners, each receiving $4,100 per annum. Of the laboratory staff only three are on the payroll of the Chief Medical Examiner's office, viz., one laboratory assistant at $1,288 per annum, another at $980 and a laboratory helper at $920.

The entire budget of the Chief Medical Examiner, including clerical help, telephone service and supplies, amounts annually to $155,001 or a little over $11 per case. In spite of the growth of the population during the decade of its existence, the high calibre of the work performed, and the decline in the purchasing power of the dollar, the cost of the office in 1927 has been less than during the last year under the coroners' system.

The high personal and professional character of Dr. Charles Norris, the incumbent of the office of the Chief Medical Examiner since its establishment, and his fine sense of civic duty are responsible for the honest and efficient services rendered to the community.

LIBRARY NOTES

DAMAGE TO BOOKS

Mutilating or defacing of books at the Academy, which formerly was of frequent occurrence, seems to have lessened with our change of base. Whether this be true or only apparent cannot be said with positiveness. If true, it may be due to the fact that readers of a certain class have not been visiting the library since the move to 103rd Street. A number of "floaters," people who used our library as a club, were in evidence at 43rd Street. These came in the morning and read (and occasionally slept), till leaving time at two o'clock. Some of these were suspected of being the mutilators of books and journals, but owing to lack of supervision, proof was lacking. On the other hand, it is possible that this form of abuse of library property may be committed like book larceny by anyone. Mr. E. W. Gaillard, of the New York Public Library, who has a long experience with the stealing of books concludes that there is no particular class of *book thieves*; that the book and the opportunity and the desire occur simultaneously and the theft follows; anyone may succumb.

Mutilations are of several kinds, the cutting of pages from an article, or the removal of a picture, or underscoring of passages with pen or pencil. The first is usually of scientific or news value, while this second loss is usually of the pornographic; as partial preventive of the latter, a number of books have been put in locked cases. But these are of course but a fraction of the books subject to the vandal.

During the year 1927 it has come to the attention of members of the library staff on half a dozen occasions that one or several pages have been removed from current magazines or from the bound volumes of recent years. The vandals, of course, do their mischief when no one is about.

In the New York Public Library recently a man was detected cutting articles out of bound volumes of newspapers. He was arrested and sentenced to the workhouse for four months. The law is plain and copies of it are displayed in every public

library, so that a plea of ignorance of the law is no excuse. Besides, everyone must know that to destroy or steal property in this way is a wrong thing to do.

RECENT ACCESSIONS TO THE LIBRARY

de Almeida, A., Jr. O exame medico pre-nupcial.
S. Paulo, Inst. d. Anna Rosa, 1927, 110 p.

American child health association. Health trends in secondary education.
N. Y., Am. child health association, 1927, 153 p.

American pharmaceutical association. The national formulary, 5. ed. Phila., Am. phar. asso, 1926, 546 p.

Bailey, H. Demonstrations of physical signs in clinical surgery.
Bristol, Wright, 1927, 217 p.

Burke, E. T. Treatment of venereal disease in general practice.
N. Y., Oxford pr., 1927, 162 p.

Bush, A. D. A textbook of pharmacology.
Phila., Blakiston, 1927, 181 p.

Calligaris, G. Il sistema motorio extrapiromidale.
Milano, Soc. an. istituto ed. sci., 1927, 1256 p.

Cavaillon. L'armement anti-vénérien en France.
Paris, Le mouv. sanit., 1927, 473 p.

Cimbal, W. Die Neurosen des Kindesalters.
Berlin, Urban, 1927, 509 p.

Chesterton, G. K. Eugenics and other evils.
N. Y., Dodd, 1927, 246 p.

Coope, R. The diagnosis of pancreatic disease.
Lond., Oxford pr., 1927, 112 p.

Corscaden, J. A. History taking and recording.
N. Y., Hoeber, 1926, 78 p.

Crow, D. A. The ear, nose, and throat in general practice.
N. Y., Oxford pr., 1927, 150 p.

Cullen, T. S. Early medicine in Maryland.
Balt., 1927, 15 p.

Domitilla, M. Outline of materia medica and special therapeutics.
Phila., Saunders, 1927, 101 p.

Enghoff, H. Der Barospirator.
Berlin, 1927, De Gruylter, 168 p.

Fattori di guarigione spontannca delle malattie infettive. Ciclo di lezioni organizzato dall'Istituto sieroterapico Milanese.
Milano, Istitu. siero., 1927, 369 p.

Fitzwilliams, D. C. L. The tongue and its diseases.
Lond., Oxford pr., 1927, 506 p.

Forgue, E. Au seuil de la chirurgie.
Paris, Doin, 1927, 226 p.

Haber, F. Aus Leben und Beruf. Aufsätze: Reden: Vorträge.
Berlin, Springer, 1927, 173 p.

Harrow, B. Eminent chemist of our time. 2. ed.
N. Y., Van Nostrand, 1927, 471 p.

Hehir, Sir Patrick. Malaria in India.
Lond., Oxford pr., 1927, 490 p.

Heller, J. Arzt und Eherecht.
Berlin, Marcus, 1927, 140 p.

Hertzler, A. E. & Chesky, V. E. Minor surgery.
St. Louis, Mosby, 1927, 568 p.

Hess, J. H. Feeding and the nutritional disorders and infancy and childhood, 5. ed.
Phila., Davis, 1927, 56 p.

Heubner, W. Otto Heubners Lebenschronik.
Berlin, Springer, 1927, 228 p.

Holweck, F. De la lumière aux rayons X.
Paris, Pr. univ. d. France, 1927, 142 p.

Kiefer, E. Befestigungs—und Entlastungsschienen.
Berlin, Meusser, 1927, 54 p.

Kohnstamm, O. Erscheinungsformen der Seele.
München, Reinhardt, 1927, 575 p.

Kretschmer, E. Ueber Hysterie. 2. Aufi.
Leip., Thieme, 1927, 128 p.

Lamy, Maurice. La réaction de Dick et l'immunité vis-à-vis de la scarlatine.
Paris, Legrand, 1927, 158 p.

Lectures on the biologie aspects of colloid and physiologic chemistry . . . 1925-26.
Phila., Saunders, 1927, 244 p.

Leys, D. Chronic pulmonary catarrh.
Lond., Lewis, 1927, 130 p.

Lipschitz, M. Die Selbstregulierung des Gebisses.
Berlin, Meusser, 1927, 147 p.

Lockhart, L. P. A short manual of industrial hygiene.
Lond., Murray, 1927, 114 p.

Macalpine, J. B. Cystoscopy.
N. Y., Wood, 1927, 284 p.

McAuliffe, G. B. The essentials of otology.
N. Y., Oxford pr., 1927, 177 p.

Maclean, H. Modern methods in the diagnosis and treatment of renal disease. 3. ed.
Lond., Constable, 1927, 135 p.

Maurice-Lévy, Les ramollissements sylviens.
Paris, Doin, 1927, 21 p.

Maygrier, C. & Schwaab, A. Précis d'obstétrique. 3. éd.
Paris, Doin, 1927, 1238 p.

Mind (The). By various authors. Ed. by R. J. S. McDowall.
Lond., Longmans, 1927, 315 p.

Mumford, A. A. Healthy growth.
Lond., Oxford pr., 1927, 348 p.

National league of nursing education. A curriculum for schools of nursing. 6 ed.
N. Y., Nat. league nurs. ed., 1927, 227 p.

Newsome, E. Every woman a nurse.
Lond., Oxford pr., 1927, 204 p.

Noyes, A. P. A textbook of psychiatry, for . . . schools of nursing.
N. Y., Macmillan, 1927, 333 p.

Noyons, A. K. The differential calorimeter.
Louvain, Fonteyn, 1927, 189 p.

Parsons, Sir John H. An introduction to the theory of perception.
Cambridge, Univ. pr., 1927, 254 p.

Pavlov, I. P. Conditioned reflexes.
Oxford, Univ. pr., 1927, 430 p.

Peabody, F. W. The care of the patient.
Cambridge, Harvard . . . pr., 1927, 48 p.

Raylings, I. D. [et al.] The rise and fall of disease in Illinois.
Springfield, State dept. of health, 1927, 432 p.

Ricker, G. Sklerose und Hypertonie der innervierten Arterien.
Berlin, Springer, 1927, 193 p.

Sanger, M. What every boy and girl should know.
N. Y., Brentano, 1927, 140 p.

Society (The) of the New York Hospital. School of nursing...
Fiftieth anniversary 1877-1927.

Stone, W. J. Blood chemistry, colorimetric methods for the general practitioner, 2. ed.
N. Y., Hoeber, 1926, 129 p.

Studien zur Geschichte der Chemie. Festgabe Edmund O. v. Lippmann zum siebzigsten Geburtstage.
Berlin, Springer, 1927, 242 p.

Thouless, R. H. The invert.
Lond., Baillière, 1927, 159 p.

Wallin, J. E. W. Clinical and abnormal psychology.
Bost., Houghton, 1927, 649 p.

Wassmund, M. Frakturen und Luxationen des Gesichtsschädels.
Berlin, Meusser, 1927, 384 p.

White, C. P. The principles of pathology.
N. Y., Longmans, 1927, 279 p.

Wilson, F. P. The plague in Shakespeare's London.
Oxford, Clarendon pr., 1927, 228 p.

EXHIBIT

An exhibition of books, portraits and records, illustrating the progress of dentistry, has been arranged for the month of February; this month being the hundredth anniversary of the publication of the first important book, "Le Chirurgien Dentiste," by Pierre Fauchard, the "Father of Dentistry."

ACTION OF THE TRUSTEES IN REGARD TO A BEQUEST

By the will of the late Lewis Duncan Mason, a Trust was created in favor of The New York Academy of Medicine as follows:

Unto the New York Academy of Medicine, now located at No. 21 West Forty-third Street, Borough of Manhattan, New York City, Five Thousand Dollars, the net income thereof to be applied towards the expense of an annual address to be delivered before the Academy and published, on some subject in relation to alcohol and other narcotics, the special topic to be selected annually by the American Medical Society for the Study of Alcohol and Narcotics, T. D. Crothers, M.D., Secretary, Hartford, Conn., and that said fund shall be called "The Theodore L. Mason Memorial Fund."

Resolution of the Board of Trustees:

RESOLVED, that the Trustees of the Academy appreciate the generous intent of the late Lewis Duncan Mason and believe it unwise for The New York Academy of Medicine to accept this bequest, because they feel that all lectures and addresses should be under the control of the Academy.

IMPRESSIONS OF MEDICAL TEACHING AND HOSPITAL WORK

In a long article published in three of the summer numbers of the Münchener Medizinische Wochenschrift, Professor Friedrich Müller of the First Medical Clinic of the University of Munich describes his impressions of his visit to the United States in 1927. Professor Müller had visited the United States twenty years before and he comments with great interest on changes which have taken place during the last twenty years.

His comments cover a wide range of matter from medical education, pre-medical education, hospital construction and administration, teaching in medical schools and medical research. His remarks are quite dogmatic, free from bias, devoid of criticism and without praise. They seem to be the expression

of a cool, impartial judgment on medical schools and hospitals as a German professor of medicine sees it. Naturally, he compares some of the differences which exist in medical work in the United States and Germany, and one has the impression that he prefers some parts of the German system to that which exists in this country. One rather feels a bit of jealousy of the economic development of this country which has made possible enormous contributions for the development of medical schools, hospitals and research.

Medical Education

The old proprietary medical schools have disappeared and enormous sums of money have been given for the development of hospitals under the control of medical schools. In many of these medical schools recently developed, there are not only medical and surgical clinics but also departments for physio-chemistry, pharmacology, bacteriology and pathology. These departments are richly furnished with all the existing facilities for chemical and physio-chemical experiments, respiratory apparatus, electro cardiograph, and all other necessary instruments. In many of the clinics, the impression is given that they are primarily created for experimental pathology, and dogs, rats and mice seem to be brought into the clinic more often than patients and animal experiments sometimes seem more important than clinical observations at the bedside.

These newer medical schools are integral parts of a great university but not so closely amalgamated with the university as one generally finds in Germany. The Cornell Medical School, for example, is situated in New York City while the University is in Ithaca, several hundred miles away.

The clinical teaching in these medical schools is being given in gigantic buildings and large hospitals, but in many of these hospitals one finds only a hundred to a hundred and fifty beds for the medical and surgical clinics, which is no more than one would find in a small clinic in a German university.

There is rich clinical material in the larger municipal hospitals and state institutions which is not fully utilized.

The hospital facilities for medical schools in many other countries are far better than in the United States.

Pre-Medical Education

Pre-medical education is carried on in colleges and universities where there are courses in classics and especially in mathematics and natural sciences. Doubtless American students are better trained in physics, chemistry and natural sciences and mathematics than German students at the beginning of their clinical semester.

In these institutions, a large amount of time and interest is devoted to sport.

Modern languages are taught in nearly all of the American schools, but there is a lack of knowledge of French and German among American doctors which does not compare with the foreign languages used by European physicians. It is much more difficult for the American physician to learn these languages, as the opportunity for using them is far less than for the continental physician.

Students see a great deal of each other—become one large family and develop a sense of loyalty for their own university and rarely change from one university to another as is so commonly done in Germany.

Teaching in the Medical Schools

The medical schools in the States are free institutions as a rule, and it is not uncommon to find that the number of students is limited to one hundred or less in the first year, a very careful selection having been made.

There is a strong control maintained over the students and they are required to attend their classes regularly. This is similar to the teaching methods employed in German gymnasia, but the American medical student lacks the freedom for learning which is highly prized in Germany. This is a danger for weak pupils and limits the independence upon which Americans place so much stress.

The American medical student has already received his training in the natural sciences before he begins his medical course, and he then begins his first year in medicine with physiology, anatomy, pharmacology, bacteriology and pathology, and each student is required to devote a considerable amount

of time to experimental work on frogs and to use scientific apparatus. Clinical clerkships are common and students are required to act as a clerk during their two clinical years. This is a useful method, and it is a typically "work school" and far better than lectures. This method is carried out in the study of internal medicine, but not so commonly applied for the specialties.

The differences between teaching in the United States and Germany are well explained in Abraham Flexner's book. The German students have lectures and exercises which cover the entire subject and Professor Müller thinks that they have a far greater value than the way they are carried on in England and America. Prominent teachers who have used this method are Osler, Billroth, Trousseau, Charcot, Frerichs and Gerhardt. It is a difficult problem to consider relative values of this "work method" limited to the study of a few individual patients contrasted with the encyclopedic method demonstrated by the lecture system.

The full-time system of teaching is increasing and sometimes the teachers are required to devote a definite number of hours to their work in the clinic. They are sometimes allowed to have a consulting practice, but the fees are turned over to the hospital. These full-time physicians are limited in their salaries and their economic and social position is not as favorable in general as in Germany, Switzerland and the Scandinavian countries, and they generally have less influence. When the professor grows older and his family needs increase, he not infrequently retires to undertake a profitable practice. In this way, many American clinics have lost some serious-minded and able workers, and the public is the loser in not being able to secure the highest type of clinical teacher as a consultant. The definitely fixed salaries prevent that wholesome competition which exists in the German universities. Students are required to take this or that course and are not able to choose as in Germany between two professors, each of whom receive students' fees in accordance with the number of students taking his course.

Hospitals

The cost of medical care in the hospitals is high, amounting to

as much as six or eight dollars a day. There are special clinical departments in the hospitals, but one rarely sees a special clinic or hospital beds for the specialties connected with the medical schools.

The hospitals are far better constructed than they were twenty years ago, when wards were poorly lighted and ventilated and the halls narrow and dark.

The medical services in the hospitals, however, are limited to only a few months of the year in most places and sometimes a few beds in a ward are divided between two or more physicians. Interns spend one or two years in the hospital, and in many of the municipal hospitals there is a noticeable lack of the older and more experienced physician who in Germany remains on as Chief Physician during a period of years. In a number of the newer clinics, however, a director of the service has been appointed who has entire charge of the clinic throughout the year.

CONVALESCENT CARE

New York City is fortunate in the number of Homes providing convalescent care for adults and children in poor or moderate circumstances. Physicians who are unaware of these opportunities for their patients or as to the method of taking advantage of them can obtain the necessary information, free of charge, from the Convalescent Service of the Hospital Information and Service Bureau of the United Hospital Fund, 151 Fifth Avenue, Telephone Algonquin 7100.

DEATHS OF FELLOWS

James Anthony Kearney, M.D., 127 West 58th Street, New York City; graduated in medicine from the University of Pennsylvania, 1918; elected a Fellow of the Academy January 3, 1918; died November 29, 1927. Dr. Kearney was a Fellow

of the American Medical Association, Ophthalmologist at Polyclinic and Gouverneur Hospitals; Visiting Ophthalmologist at the State Hospital for Crippled Children, Haverstraw, and Ophthalmologist at the Polyclinic and French Dispensaries.

FREDERICK JAMES SCHWEIKART, M.D., 26 Victor Place, Elmhurst, New York; graduated in medicine from Long Island College Hospital, 1905; elected a Fellow of the Academy January 3, 1918; died December 27, 1927. Dr. Schweikart was a Fellow of the American Medical Association, Neurologist at St. John's Hospital, Assistant Neurologist at the Queensboro Clinic and Post-Graduate Dispensary, and Consulting Neurologist at the Flushing Hospital.

NEWTON MELMAN SHAFFER, M.D., 31 East 49th Street, New York City; graduated in medicine from the University of the City of New York, 1867; elected a Fellow of the Academy December 4, 1879; died January 2, 1928. Dr. Shaffer was a Fellow of the American Medical Association, a Fellow of the American College of Surgeons, a member of the American Orthopedic Society, the Orthopedic Society, and Consulting Surgeon to St. Luke's and State Hospital for Crippled and Deaf Children at West Haverstraw.

SAMUEL STERN, M.D., 40 East 51st Street, New York City; graduated in medicine from P & S, Columbia, 1896; elected a Fellow of the Academy October 6, 1927; died November 22, 1927. Dr. Stern was a Fellow of the American Medical Association, a member of the American Roentgen Ray Society, Radiological Therapist at Mt. Sinai Hospital and Chief Radiological Therapist at the Mt. Sinai Dispensary.